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Editorial

Environmental Pollution and Mental Health: Time to go green

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It is not uncommon to hear when health is reported to be compromised if pollution is high. The World Health Organization (WHO) estimates that 9 of every 10 people worldwide inhale polluted air, and exposure to polluted air is accountable for 4.2 million premature deaths worldwide in 2016.[1] Studies have associated the adverse effects of air pollution with respiratory, cardiovascular, and neurovascular diseases. But, mostly the focus is on physical health. However, adverse impact on mental health is also seen but is not reported or studied adequately. Serious neurocognitive changes in behavior to neurodegeneration is seen due to air pollutants leading to an adverse impact on mental wellbeing.

Air pollution refers to any physical, chemical, or biological change in the air that may be contaminated due to harmful gases, dust and smoke which affects plants, animals and humans drastically, according to the WHO. Vehicles burning fossil fuels, waterway transportation, biomass combustion, aircrafts, agriculture, and industry power plants are the main contributors to atmospheric pollution. Pollution particles as particulate matter (PM) include $PM_{2.5–10}$, nitrogen dioxide NO_2, Ozone O_3, sulfur dioxide SO_2 and carbon monoxide CO) can be measured. According to data from China published in 2018, every 1 standard deviation rise in particulate matter over an average PM2.5 concentration increases the likelihood of having mental illness by 6.67%, translating to an annual medical expense of $22.88 billion USD.[2] Short-term exposure to ozone may be associated with increased psychiatric emergency services admissions. Ozone may be considered a potential environmental risk factor for impaired mental health.[3]

Pathophysiology

Pollution particles can cross from the lungs to the blood and, in some cases, travel up the axon of the olfactory nerve into the brain. It has been postulated that environmental pollution increase oxidative stress causing inflammatory responses in individuals which influences mental well being. Mohan Kumar et al found that air pollutants, specifically particulate matter, induce inflammation and oxidative stress in the brain that can lead to the manifestation of depression.[4] A German study by Petrowski et al found air pollution ($PM_{2.5}$) as a significant predictor of chronic stress in healthy individuals (higher $PM_{2.5}$ values — more chronic stress symptoms). Toxic air pollutants cause harm to the respiratory organs as well as affect mental health by increasing anxiety and depression.[5] Vert et al found that the rate of depression was 2 times higher for each 10 μg/m^3 increase in the nitric oxide level.[6] Szyszkowicz et al reported a 7.2% increase in the risk of emergency department visits for depressive episodes with every 19.4 μg/m^3 of PM10 concentration.[7] Air pollution can also activate the hypothalamic – pituitary – adrenal (HPA) axis and overlapping conditions between stress axis regulation and adverse health effects of air pollutants do exist. Continuous exposure to air pollution or exposure during vulnerable life phases may lead to increased allostatic load or dysfunction of the HPA axis and ultimately affect physiological stress response systems.[8]

Mental health issues

Association between mental health and air pollution is inconsistent in studies. In a multi-nation study,[9] no consistent evidence was found for associations between air pollution ($PM_{2.5}$ and PM_{10})

and depressed mood, while a significant link between air pollution (PM_{10} or $PM_{2.5}$) and depressive symptoms were seen in Asia[10] and the United States.[11] There are studies which measured psychological well- being rather than a particular mental health disorder. It is even reported that air pollution causes chronic stress and can impact coping strategies of an individual. Indirect effects of air pollution may occur including irritation, annoyance, displeasure, and less physical outdoor activities. While studies have addressed psychological well-being indexes of air pollution in humans it has even been hypothesized that air pollution may increase the risk of psychiatric disorders such as schizophrenia and other psychotic disorders,[12] especially during the initial years of an individual's life. Studies have reported that increase in air pollution have shown an increase visits in psychiatric emergency and mental distress.

Daily and even long-term exposure to air pollution is a risk factor for mental health disorders such as depressive disorders, suicidal ideation and substance abuse.[13] Meta analyses have also demonstrated though small but significant positive associations between long-term exposure to fine particulate matter and depressive symptoms and cognitive decline.[14] It is very well known that physical and outdoor activities do have a positive influence on mental health of an individual but with increased air pollution this becomes restricted which can impact a person s mental well being.[15] More importantly the negative effects of air pollution influence individuals differently. Vulnerable populations (e.g. infants, elderly, or individuals with pre-existing conditions) as well as individuals who struggle with coping may be disproportionally affected. This is referred to as the adaptive cost hypothesis[16] where resources to cope with environmental demands may interfere with other adaptive processes (e.g. psychosocial stressors). Air pollution has also shown its effect on an individual's stress resilience but literature is limited. Stress resilience refers to the adaption to ongoing life challenges in order to quickly recover and promote mental health and hence one's vulnerability, may be associated with environmental stressors like daily exposure to air pollution.

Active measures

A green environment has been found to be a protective factor to psychological well-being. Recently, there has been a growing body of literature providing evidence for the positive link between physical or built environment and mental health. Thus, reduced air pollution at individual, local, or regional levels may decrease vulnerability to adverse health impacts. In comparison, perception than the objective level of pollution is a stronger predictor of affective reactions and willingness to pay to reduce pollution. Furthermore, individuals more emotionally aroused with respect to a polluted environment are more prone to put in time and more willing to allocate financial resources towards pollution abatement.

- Increasing awareness to improve knowledge on air pollution as a risk factor to public health and to explore associated psychological factors.
- Creating green spaces and urban forestation for eliminating air toxins, avoiding exercising near crowded roads and streets, carpooling and improving household ventilation by substituting low-emission cook stoves for traditional solid household fuel.[17]
- With the recent global concern about climate warming, mental health professionals have a critical role to influence city planners on the importance of the green environment and the forest. In Singapore, the 'Therapeutic Garden' project and 'Therapeutic Rainforest' program are examples of mental health professionals working with government agencies for a 'city in nature'.[18]
- Changes at the level of policy makers. Public policies are essential to reduce the effect of air pollution like tree implantation, strict monitoring and supervision of various agencies and industries contributing to pollution, stringent measures for those ignoring the rules and regulations etc.

Environmental pollution is on the rise in our country, Delhi one of the worst affected. It adversely impacts our physical and mental health. Its high time that urgent and active measures are taken aggressively to counter it for long term positive mental health well being of our country.

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Award Paper

Dr Ravi Pande Memorial Young Psychiatrist Award

A Study to Develop a Scale for Mental Health Literacy Assessment among an Indian Urban Community of Multi-cultural Background

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ABSTRACT

Background. *Mental Health Awareness (MHA) is a key factor in help-seeking and service delivery in the realm of mental health. Mental Health Literacy (MHL) encompasses key components of MHA and can be a measurable variable in assessing MHA in a community or population. There is no scale to assess the unique aspects of MHA in Indian population. Self-designed questionnaires used in Indian studies on the subject have found MHL rates to be very low. There is a need for a standardized instrument to measure MHL in Indian population.* ***Aim.*** *To design and standardize a questionnaire for Mental Health Literacy (MHL) among an urban, multicultural Indian population, and to assess the baseline level of Mental Health Literacy (MHL) as a pilot study using this questionnaire.* ***Methods.*** *A 25 item, bilingual (Hindi and English) questionnaire called the Indian Scale of Mental Health Literacy (ISMHL) was designed and administered (n = 316). The psychometric properties of the scale were ascertained and results of the pilot study obtained.* ***Results.*** *The Cronbach's alpha for ISMHL was found to be 0.696, ICC for test-retest reliability was 0.79 and inter-rater reliability correlation coefficient was 0.978. Average score of 62% was obtained on ISMHL. Age and educational level were found directly proportional with MHL ($p<0.05$).* ***Conclusion.*** *ISMHLis a useful tool for measuring MHL among Indian population, with good psychometric properties and validated on a population with multi-cultural background, thus bringing adequate generalisability to various Indian communities. Since educational level is directly proportional to MHL, impetus on general literacy is of essence.*

Keywords*: Mental health literacy, Assessment, Indian urban community, Service delivery*

Introduction

Mental health and lack of awareness about it is a major concern all over the world, and in India. About 14% of the global burden of disease is attributed to neuropsychiatric disorders.[1] In May 2013, 194 ministers of health adopted the World Health Organization Comprehensive Mental Health Action Plan in the World Health Assembly, recognizing mental health as a global health priority and pledging action.[2] Yet, mental health awareness at user level remains low, and progress in mental health service delivery has been slow in most low- and middle-income countries.

Mental health awareness is a means of combating stigma, enhancing prevention, ensuring early recognition, and also stimulating simple and practical interventions within the community.

Mental health literacy is a related concept which

is increasingly seen as an important measure of the awareness and knowledge of mental health disorders. Jorm et al introduced the term 'mental health literacy' and have defined it as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention".[3] Health literacy has been described as "ability to access, understand, and use the information to promote and maintain good health." Mental health literacy encompasses recognition, causes, self-help, facilitation of professional intervention, and navigating the information highway. Mental health literacy consists of several components, including: (a) the ability to recognize specific disorders or different types of psychological distress; (b) knowledge and beliefs about risk factors and causes; (c) knowledge and beliefs about self-help interventions; (d) knowledge and beliefs about professional help available; (e) attitudes which facilitate recognition and appropriate help-seeking; and (f) knowledge of how to seek mental health information. Of the various aspects of MHL, recognition of mental disorders is the most common attribute measured in MHL, as it is the first step towards MHL and forms a pre-requisite for measurement of other attributes.[4]

Objective assessment of Mental Health Literacy is a challenging task, due to lack of standardized tests.[5] A Chinese study used a self-designed questionnaire called MHKQ (Mental Health Knowledge Questionnaire), specific to the Chinese population. They found an average of 58% correct responses on the questionnaire, and also found that younger age as well as higher education and income were independently associated with higher MHL.[4]

There are a few studies which have measured mental health literacy in the Indian context. However, to the best knowledge of the author, there is no standardized questionnaire for measurement of MHL among Indian population. One Indian study that used self-administered questionnaire found mental health literacy among adolescents to be very low, i.e. depression was identified by 29.04% and schizophrenia/ psychosis was recognized only by 1.31%. Stigma was noted to be present in help-seeking.[6]

Given this dismal state, the only way forward is through enhancing mental health awareness which will generate its own demand. With rising awareness, it can be expected that early recognition and access to treatment will follow, as will the adoption of preventive measures. It can also be expected that with enlarging awareness in a democratic society, advocacy, leveraging of political will, funding, and cross-synergies shall follow[1] The same can be achieved through conventional media, Government programs such as DMHP and NRHM, educational and industrial platforms, and in today's day and age, internet and technology.

Research shows that focused and innovative mental health awareness campaigns and activities can improve awareness and reduce stigma.[7] Towards this aim, the first natural step would be to assess the baseline level of awareness among the population, using a standardized questionnaire. The second step would be to use this data for planning more targeted campaigns and awareness activities aimed at improving the MHL levels among the population.

Methods

The study was conducted at New Delhi on a group of central government employees and families from a varied cultural and ethnic background, from Apr 21 to Jun 21. It is a cross-sectional study combined with standardization of the questionnaire. Prior to initiation, a synopsis of the study proposal was presented before the Institutional Ethics Committee. No ethical shortcomings were found and the work was assigned unanimous approval by the Institutional Ethical Committee. Exclusion Criteria were age less than 15 years, individuals with active psychotic illness and inability to understand Hindi/ English.

A 25-item, bilingual (Hindi & English) questionnaire covering the various components of Mental Health Literacy as per Jorm et al[3] was designed and administered to a subject group (n = 316) on Day 1. The questionnaire was then scored by six different raters, who were provided with a key. The following scoring protocol was used by all the raters:

Type of answer	Score
Correct	1
No answer	0
Incorrect	-1

The respondents were contacted on the phone and called for re-test on Day 14. Out of 316 respondents who had filled the questionnaire on Day 1,176 appeared for the re-test (n=176). The data so obtained was analysed to assess the baseline level

of MHL (primary outcome measure) and the association between socio-demographic variables and MHL (secondary outcome measure), using MS Excel. Frequency distribution of variables were plotted on graphs. Chi-square test was applied to find out results of significance. Findings were suitably interpreted in the light of existing literature.

Results

Demographic variables of age, sex, education and religion were distributed as shown in Fig 1.

Age Group

		Frequency	Percent	Valid Percent
Valid	≤ 20	4	1.3	1.5
	21 - 30	181	57.3	69.3
	31 - 40	44	13.9	16.9
	41 - 50	25	7.9	9.6
	> 50	7	2.2	2.7
	Total	261	82.6	100.0
	System	55	17.4	
Data Not Available				
Total		316		

Sex

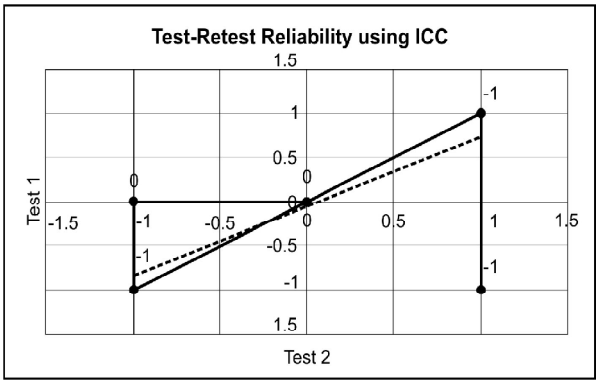
		Frequency	Percent	Valid Percent
Valid	Male	239	75.6	87.5
	Female	34	10.8	12.5
	Total	273	86.4	100
	System	43	13.6	
Data Not Available				
Total		316	100	

Education

		Frequency	Percent	Valid Percent
Valid	SSC	9	2.8	3.7
	HSC	71	22.5	29.2
	Graduate	123	38.9	50.6
	Post Graduate	40	12.7	16.5
	Total	243	76.9	100
	System	73	23.1	
Data Not Available				
Total		316	100	

Religion

		Frequency	Percent	Valid Percent
Valid	Data Not Available	71	22.5	22.5
	C	7	2.2	2.2
	H	227	71.8	71.8
	M	9	2.8	2.8
	S	2	.6	.6
	Total	316	100	100



Age

Age group	N	Mean	SD	Std. Error	Interval for Mean Lower Bound	Interval for Mean Upper Bound	Minimum	Maximum	p-value
≤ 20	4	10.25	2.75	1.38	5.87	14.63	7.00	13.00	0.021
21–30	181	15.31	3.70	0.27	14.77	15.85	1.00	24.00	
31–40	44	15.48	5.48	0.83	13.81	17.14	2.00	25.00	
41–50	25	17.28	4.30	0.86	15.51	19.05	9.00	24.00	
> 50	7	16.14	4.10	1.55	12.35	19.93	10.00	21.00	
Total	261	15.47	4.17	0.26	14.96	15.98	1.00	25.00	

Average score of MHL was 15.4 out of 25 (62%) as obtained on the questionnaire. Age and educational level were found directly proportional with MHL. (Fig. 2). Reliability measures that were assessed included internal consistency (by calculating Cronbach's alpha), test-retest reliability (by intra-class correlation coefficient) and inter-rater reliability and factor analysis. For 25 components, sum of

item variances was 17.27589 and variance of total scores was 52.06177, thus yielding a Cronbach's alpha of 0.696006. ICC for test-retest reliability was 0.79 (Fig. 3) and inter-rater reliability correlation coefficient was 0.978. Criterion validity could not be calculated, as there is no gold standard test of MHL available to compare against.

has good psychometric properties and is standardized on a multi-cultural, Indian population, thus can be useful in measuring MHL among Indian population. MHL may increase with age and education, hence impetus on improving literacy rates of the population is required.

A major strength of the study is the choice of

Education

Education	N	Mean	SD	Std. Error	Interval for Mean		Minimum	Maximum	p-value
					Lower Bound	Upper Bound			
SSC	9	12.67	4.03	1.34	9.57	15.77	6.00	17.00	0.002
HSC	71	14.54	3.66	0.43	13.67	15.40	1.00	21.00	
Graduate	123	15.70	3.99	0.36	14.99	16.41	4.00	24.00	
Post Graduate	40	17.10	4.36	0.69	15.71	18.49	8.00	25.00	
Total	243	15.48	4.06	0.26	14.96	15.99	1.00	25.00	

Discussion

Reliability and validity are considered the main measurement properties of research instruments. Assessment of reliability includes tests of stability, internal consistency and equivalence. Stability estimates the consistency of measurement repetition, and can be measured by test-retest method. Internal consistency can be assessed by calculating Cronbach's alpha value for the scale. Equivalence Validity measures include content, criterion and construct validity.[8]

Considering that there is no gold-standard scale to compare the MHL scale developed for this study, the available psychometric properties show that this scale is a valid, useful scale for measuring MHL among Indian population.

As opposed to the Chinese study by Yu Y et al,[4] this study showed a directly proportional relation between age and MHL. However, the linear relationship between education and MHL was in line with the findings of this study. In another, Indian study, the rates of MHL were found to be very low among adolescents, and stigma was high.[6] In my study, only individuals above 15 years of age were included. A separate study using this MHL scale on adolescents may give a different perspective. Gender and religion were not found to have any significant relationship with MHL.

To summarize, MHL is a key variable in mental health awareness and policy making for service delivery. The scale developed as part of this study

population for standardization of the scale, which is a multi-cultural population, comprising of relatively well educated, employed, middle class citizens. This removes the possible confounding effect of ethnicity, poverty, cultural variations in attitudes and beliefs and lack of education. Another strength is the use of a 'key' for scoring of the questionnaire by the rater, thus ensuring a very high inter-rater reliability.

Limitations of the study include non-standardization of Hindi and English versions of questionnaire separately, which may introduce a methodological flaw. However, to minimize the same, the key to the questionnaire is designed in such a manner so as to produce identical scores irrespective of the version of questionnaire used.

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Appendix

Name (optional) ..... Education .....

Age ..... Religion .....

Sex ..... Mobile no. .....

1. **What is 'mental illness'?**
   (a) There is no such thing
   (b) It is the disease of the mind akin to the disease of the body
   (c) It is a temporary state caused by 'life problems'
   (d) It is another name for 'madness'
2. **Which of these is not a 'mental illness'?**
   (a) Depression
   (b) Anxiety
   (c) Homosexuality
   (d) Alcoholism
3. **If a person has started remaining aloof, has disturbed sleep and appetite and is contemplating suicide, what could it be?**
   (a) Depression
   (b) Anxiety
   (c) Phobia
   (d) Personal problem
4. **If a person is muttering to self, laughing without reason, neglecting self-care and wandering aimlessly, what could it be?**
   (a) Depression
   (b) Anxiety
   (c) Phobia
   (d) Schizophrenia
5. **If a person suddenly starts trembling and sweating, with a pounding heart and worrying thoughts, what could it be?**
   (a) Depression
   (b) Anxiety
   (c) Schizophrenia
   (d) Personal problem
6. **Which of these is not a sign of mental illness?**
   (a) Remaining aloof and withdrawn
   (b) Neglecting self-care
   (c) Criminal behavior
   (d) Washing hands too often
7. **Which one of these is not a mental illness seen in children?**
   (a) Learning Disability
   (b) Autism
   (c) ADHD
   (d) Paraphilic Disorders
8. **What causes 'mental illness'?**
   (a) It is genetic
   (b) Bad experiences in the childhood can cause it
   (c) Poor home or work environment can cause it
   (d) All of the above
9. **Which one of the following is a major risk factor for 'mental illness'?**
   (a) Family history of mental illness
   (b) Break-up
   (c) Harsh conditions of work environment
   (d) Low education
10. **Among the following, who is at the maximum risk to develop mental illness?**
    (a) Children
    (b) Adolescents and young adults
    (c) Elderly
    (d) Middle Age
11. **What can you do to prevent 'mental illness' in self?**
    (a) Keep yourself busy with work
    (b) Build resilience to cope better with stress
    (c) Keep your problems to yourself
    (d) Pray everyday without fail
12. **Which of these is not an option for stress reduction?**
    (a) Yoga
    (b) Meditation
    (c) Sports
    (d) Alcohol
13. **When you are under tremendous stress, you should**
    (a) Keep it to yourself to avoid being made fun of
    (b) Contact the nearest mental health professional and discuss
    (c) Drink alcohol to ease your mind

(d) Keep thinking about the problem till you arrive at a solution

14. Which of these is a mental health care professional?
(a) Psychiatrist
(b) Psychologist
(c) Both
(d) None

15. If your family member were to develop mental illness, who would you approach for professional help?
(a) Best Friend
(b) Native 'baba'/'sadhu'/'mahatma'
(c) Nearest available doctor
(d) Police

16. What would you do if your colleague/friend has mental illness?
(a) Take him to a doctor
(b) Maintain safe distance from him/her
(c) Take over his/her work to help him
(d) Tell him/her to drink to feel better

17. What would you do if you came to know that your spouse has a mental illness?
(a) File for a divorce
(b) Take him/her to a doctor
(c) Avoid taking him/her to social gatherings
(d) Minimize contact with him/her

18. If you were to find out that your friend is taking Psychiatric treatment, you would
(a) Express your support openly
(b) Think that he/she is a coward
(c) Suggest alternative methods to treat the illness
(d) Tell his/her family and employer to warn them about possible violence

19. Which of these is not a treatment for mental illness?
(a) Isolation
(b) Medication
(c) Counselling
(d) Electric shock treatment

20. Psychiatric drugs
(a) Are as safe and effective as any others
(b) Can cause permanent brain damage
(c) Can cause dependence
(d) Cannot be given to children

21. Electric shock treatment
(a) Is a painful procedure
(b) Is a type of torture
(c) Is a safe and effective method of treatment for mental illness
(d) Can cause permanent brain damage

22. Which is the most suitable place for people with a mental illness to live?
(a) Asylum
(b) Jail
(c) Ashram
(d) Home

23. How can you manage a mentally ill family member at home?
(a) Ensure regular medication under supervision
(b) Chain them
(c) Arrange regular poojas to ward off the evil spirit causing the problem
(d) Turn them out to prevent harm to other family members

24. Which one of these is not a treatment for addiction?
(a) Medication
(b) Counselling
(c) Group Therapy
(d) Electric shock therapy

25. Which of the following statements is true?
(a) People who are mentally ill have equal right to live with dignity
(b) People who are mentally ill are best kept in asylums
(c) People who are mentally ill should be dealt with by law
(d) People who are mentally ill should not be allowed to marry

Review Article

Psychiatric Aspects of Cancer

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Introduction

The stigma that has been attached to cancer for centuries is that it equal death and this has led to the attitude that doctors should not reveal to the patients that they had cancer. While it may raise the worst of fears in adults and children, thanks to modern treatments, a diagnosis of cancer is not always fatal. But there is plenty that can be done psychologically to cope with the medical or psychological aspects of cancer with humanity, understanding, courage and dignity.

The addition of chemotherapy, greater openness in revealing the diagnosis, increased concern for the dying, and enhanced concern about quality of life and the rights of patients led to more attention to the supportive and psychological aspects of care. In some countries e.g., USA and UK, a new specialty – Psycho-oncology or Psychosocial Oncology has developed with the aims to study the prevalence of psychiatric co- morbidity in cancer and to address key psychological, behavioral and social issues.

Pattern of Psychiatric Morbidity

A study done in the 1980s at three cancer centers identified the prevalence of psychiatric disorders in patients with cancer (60% inpatients and 40% outpatients).[1] Among these patients, 32% showed a mixture of reactive depression and anxiety (adjustment disorder with depressed anxious mood, in the DSM-III).[1-3] Six percent had major depression, 4% organic mental disorders, 3% personality disorder and/or alcohol abuse, and 2% anxiety disorders. The percentage of distressed patients rises in hospitalized patients because of greater disability, pain, metabolic derangements, and confusional states caused by medications.[2,4] These forms of distress from depression or anxiety and confusional states (organic mental disorders) constitute, by far, the most likely psychiatric diagnoses encountered.

Anxiety Disorders

Anxiety is the most common form of psychologic distress in patients with cancer.[5-12] It occurs in four forms: (1) situational anxiety anticipating or related to a frightening aspect of illness or treatment; (2) disease-related anxiety (Anxiety which is disease-related is seen often with poorly controlled pain; it usually disappears when pain is adequately controlled. Anxiety also occurs with abnormal metabolic states, such as hypoxia, pulmonary embolus, sepsis, delirium, bleeding, cardiac arrhythmia, and hypoglycemia etc.) (3) treatment-related anxiety (anxiety related to frightening or painful procedures, especially those occurring repeatedly, such as wound debridement, surgery or radiological procedures. Several drugs frequently used in cancer also produce symptoms of anxiety: corticosteroids, neuroleptics used as antiemetics, bronchodilators, thyroxine, and stimulants) and (4) an exacerbation of a pre-existing anxiety disorder (Patients who have pre-existing phobias, panic attacks, generalized anxiety, PTSD, or obsessive-compulsive disorder (OCD) are at risk of their symptoms exacerbating during cancer treatment[5]. OCD can be a difficult psychiatric disorder complicating cancer treatment. Anxiety symptoms are more common in women with cancer.[13] The patient is often indecisive about accepting both cancer treatment and psychiatric intervention with a psychotropic medication.

The treatment of simple situational anxiety

usually is handled adequately by the physician. For persistent or distressing anxiety, three types of treatment are available: (1) psychotherapy and counseling, (2) behavioral interventions, and (3) psychopharmacologic treatment. Counseling or formal psychotherapy using a psychoeducational, cognitive-behavioral, or supportive intervention model is helpful.[14-17]

Depression

While it is expected and normal for a patient to feel sad on learning a diagnosis of cancer or hearing news that another crisis related to illness has occurred, some individuals experience far greater distress, at a level that is abnormal and constitutes a diagnosable depressive disorder. Depression is difficult to diagnose in patients with cancer because the neoplastic disease itself often produces the vegetative symptoms of cancer: fatigue, weakness, loss of libido, insomnia, loss of interest, and poor concentration and motivation.[18] The oncologist must depend on the psychological symptoms of dysphoric mood, helplessness, hopelessness, worthlessness, loss of pleasure (anhedonia), and suicidal thoughts.[9,12,19] Social support, anxiety, perceived stress, and self-efficacy were found to be consistently associated with depression in cancer patients.[20]

Depressive symptoms in their mildest form are part of an "adjustment disorder with depressed mood." Dysthymia is another form of depression which is chronic and may become worse during illness. The medication-related risk factors: greater level of debilitation, advanced disease, and presence of another chronic illness or disability. Several medications frequently contribute: steroids, some chemotherapeutic agents (interferon, vincristine, procarbazine, L-asparaginase), and medications given for other reasons.[21]

Depression is managed first by establishing good rapport with the patient and ensuring support from available family members or friends. Supportive psychotherapeutic as well as behavioral interventions and psychotropic agents, often combined, are important resources for the treatment of depression. The commonly used antidepressants are the tricyclics, second-generation antidepressants, heterocyclics, selective serotonin-reuptake inhibitors (SSRIs), monoamine oxidase inhibitors, psychostimulants, lithium carbonate, and benzodiazepines. The SSRIs are the first-line treatment now because of their efficacy and low side effect profile, with less sedation and fewer autonomic side effects than the tricyclics. Tricyclic with sedating effects, such as amitriptyline or doxepin, is best for agitation and insomnia. The tricyclics also are helpful in controlling chemotherapy-related peripheral neuropathy, pain, and discomfort. Psychostimulants are most widely used to promote well-being and counteract the fatigue from advanced illness.

Suicide

The incidence of suicide is higher in patients with cancer compared with the general population, but it is not as high as often is assumed.[22-24] It is likely, however, that suicide by overdose at home during the terminal stages of cancer is under diagnosed and under-reported due to fear of stigma. Suicide is more likely to occur in advanced disease, when depression, hopelessness, and the presence of poorly controlled symptoms (especially pain) are greatest. Evaluation of suicidal thoughts and risk in cancer must take into account disease stage and prognosis, since management depends on these factors. It is helpful to consider the issue from four perspectives: (1) the suicidal thoughts which occur transiently in all patients with cancer; (2) suicidal thoughts in patients who are in remission with a good prognosis; (3) suicidal thoughts in patients with poor prognosis/poor symptom control; and (4) suicidal thoughts in patients in terminal stages. A study by Hietanen and Lonnqvist[24] of all suicides in Finland in 1987 found that 4.3% had cancer. Surprisingly, half these patients with cancer were in remission at the time of the suicide; they had greater prior psychiatric problems, particularly substance abuse, than those who committed suicide in advanced stages of cancer. Chochinov and colleagues[25] found that the persistent desire for death in the terminally ill is closely associated with the diagnosis of depression. It is particularly important to evaluate the presence of hopelessness, which is a greater predictor of suicidal risk than depression itself.[23] Suicidal ideation diminishes when there is good control of pain and depression.

Delirium

Delirium, or encephalopathy, is a non-focal, global cerebral dysfunction characterized by waxing

and waning levels of consciousness, disordered thinking, disorientation and confusion, psychomotor slowing or agitation, and altered behavior, judgment and sleep-wake cycles. It is often worse at night, hence the term "sundowning." In patients with cancer, especially those in the advanced stages of disease, a sudden change in mood or behavior is most often related to a change in neurologic, vascular, or metabolic status; a functional basis is far less likely. In fact, in advanced and terminal illness, 75% of hospitalized patients were found to develop a confusional state (delirium) during the period before death.[26] Delirium is a frequent complication of cancer treatment and is associated with high morbidity and mortality.[27] Management begins with attention to the patient's safety. It is important to have one-to-one observation, preferably by a person who can correct the patient's misinterpretations of what is happening. Limiting the number of new faces and experiences is useful while enhancing awareness of time and place. Older patients are most prone to become confused, and delirium may be superimposed on dementia. Physical restraints must sometimes be used to prevent removal of vital intravenous lines and bandages and to prevent falls. Pharmacologic restraint may be necessary. Correcting the underlying metabolic or neurologic problem is not always possible, however, and comfort for the patient and family may depend, in practical terms, on being able to control the patient's symptoms of confusion and agitation.

Psychiatric and Psychosocial Interventions

It may be surprising to learn that most studies point to the fact that most adults and children are actually psychologically resilient in coping with cancer. While the struggles faced from the initial diagnosis of cancer, its treatments and after effects, do test that resilience, it is good to know most people do quite well psychologically. One important factor is how well an individual has coped with other things in their life, and how well developed their coping strategies and stress management skills are. Children or adults with prior histories of emotional or mental health problems often face great challenges in coping with cancer and its treatments. People who have suffered from depression, anxiety or serious mental health issues are more prone to having adjustment difficulties when dealing with the rigorous intensity of the physical and psychological stressors associated with cancer. Sometimes the person may feel so overwhelmed that they may feel suicidal. This can help the team make an appropriate and timely referral to a psychologist or a psychiatrist.

It is advocated to put together two support teams, the first a support and comfort team, and the other a medical and psychosocial team. A support comfort team may be family and close friends. A medical-psychosocial team might consist of oncologists, surgeons, nurse practitioners, bedside nurses, a psychologist, a psychiatrist, a social worker and clergy. A close working relationship between the medical-psychosocial team members will be extremely important for purposes of coordinating treatments and for communicating and addressing an adult's or a child's needs throughout treatment. There are specialists within the field of psychology and psychiatry who deal specifically with cancer patients and their families. This subspecialty is called psycho-oncology, psychosocial oncology or behavioral oncology. This field is concerned with the psychological, social and behavioral aspects of cancer. These professionals are able to provide individualized education and support related to the specific cancer, the cancer staging, as well as the effects of expected treatments. They usually work with families and caretakers. Therapy is best when it is coordinated between the multiple team members.

Psychologists working with cancer patients and their families try to assess how well people have fared in the past. They consider not only weaknesses, but strengths. They try to work with those strengths to come up with good, compatible coping strategies, help patients develop stress management skills and help them and their families through these difficult times. Remember, while fear and distress may be considered part of the cancer experience, a psychologist may be able to put important things into perspective and help in troubleshooting crises.

Brief crisis counseling[28] and combined psychosocial and educational interventions have proven to be of value in patients with cancer in helping them cope more effectively.[29] Problem-solving counseling has emerged as a cognitive approach that is helpful for patients and family members.[30,31] Twillman and Manetto[32] have shown the efficacy of concurrent psychotherapy and pharmacotherapy in the management of depression and anxiety. Other studies have

compared antidepressants.[33-35] Kissane and colleagues[36] have taken a cognitive-existential approach and group counseling models have been directed at both early and advanced disease, with evidence of efficacy.[37-40]

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Original Article

Cognitive Fusion and Dysfunctional Metacognitive Beliefs in Depression

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ABSTRACT

Background: *An individual draws on the cognitive and intellective processes to decipher the objects, persons, or experiences that cultivate the frameworks of his cognitive, experiential, and behavioral patterns or reactions. These cognitive and intellective processes are either altered or amplified in the states of depression, anxiety, trauma, and stress.* ***Material & Methods:*** *The study was cross-sectional and comparative deploying a non-probability convenience sampling technique. Total of 80 participants were recruited, divided into 2 groups, with 40 participants in each group, namely; depressive disorders (DD) and healthy controls (HC). The participants in the DD group were recruited from the outpatient department (OPD) of Psychiatry of a tertiary care hospital of an urban locality and had a diagnosis of either major depressive disorder or recurrent depressive disorder while the HC group had the bystanders of the patients visiting non-Psychiatry OPD of the Hospital. MINI, GHQ-12, BDI-II, Meta Cognition Questionnaire (MCQ-30), Cognitive Fusion Questionnaire (CFQ-28) were used for assessment.* ***Results:*** *The differences between the two groups in the range of age and education appear similar. The differences were statistically significant.The two groups significantly differed on all assessment measures and the DD sample had higher mean scores on depression severity, cognitive fusion, and dysfunctional metacognitive beliefs than the HC sample. The depression was significantly correlated with cognitive fusion.* ***Conclusion: C****ognitive fusion and dysfunctional metacognitive beliefs can be a vulnerable factor in non-clinical population while in clinical population these can worsen the psychopathology and interfere in the treatment outcome.*

Keywords: *Cognitive fusion, Metacognitive beliefs, Dysfunction, Depression.*

Introduction

An individual draws on the cognitive and intellective processes to decipher the objects, persons, or experiences that cultivate the frameworks of his cognitive, experiential, and behavioral patterns or reactions.[1,2] These cognitive and intellective processes are either altered or amplified in the states of depression, anxiety, trauma, and stress.[3] Some of these processes that underlie the psychopathology encompass negative appraisals or attributions, depressogenic cognitions, peri-traumatic processing, self-referential thinking, attentional biases, etc.[4,5]

There are cognitive-behavioral interventions that maneuver these processes or cognitive psychopathologies, as they may be referred to, through various techniques namely; cognitive restructuring, cognitive reappraisal, or cognitive remediation.[1,5,6] Cognitive behavioral approaches are evidence-based practices and now third-wave therapies such as acceptance and commitment therapy (ACT), meta-cognitive therapy (MCT) or mindfulness-based practices are emerging as efficacious interventions.[7,8] The third-wave therapies go beyond the restructuring or reappraisal of the content or form of thoughts to

alleviate psychopathology, rather these interventions modulate the way an individual relates to one's thoughts or he believes his thoughts to be true.[9] These interventions may not alter the thought but they change the perception and interpretation of these thoughts through awareness and psychological flexibility.[8] The fundamental principle of these interventions is that a psychological disorder persists due to the impact of the state of thinking on emotional experiences. It's driven by the self-regulatory executive function model (S-REF) contending a perseverative thinking style known as a cognitive attentional syndrome (CAS), that is, narrowing of attention on worry and rumination in depression.[10,11] The sense of threat persists through excessive attention enthralled by threatening and unhelpful coping behaviors. As per the S-REF model, CAS is the result of metacognitive beliefs (MCBs), which control the thinking processes. The beliefs about the trueness of thought make an individual perceive it as reality, as one fuses the thought with the experience leading to a reduced ability to discern a situation or event discretely.[12] For example in depression, a failure may induce self-blame or a feeling of worthless without being able to objectively sight the factors that contributed to the failure. This thought gains strength from one's beliefs about the thought, and further cognitive fusion (CF) reinforces such negative beliefs. Consequently, CF affects functioning due to its intrusive nature and magnification of the cognitive triad.

CF is rooted in language development and prognosticate depression than cognitive appraisal implying that just recall or interpretation of memory as negative is less predictive of poor mental health rather it's the internalized label attached to the memory using self-evaluative or self-descriptive thoughts that arise the depressive state.[13,14] Therefore, the relational frameworks stir up the linkage among different stimuli making an individual assimilate the object beyond its rational dimensions. Thus, it can be inferred that MCBs and CF regulate the construction of experiences and collateral emotional states leading to dysfunction. Third-wave therapies conceptualize the role of MCBs and CF in the genesis of psychopathology, and intervention concentrates on remodeling these cognitive psychopathologies. However, there is very limited research from India exploring these variables in psychopathology, and the current study endeavors to understand the relationship between cognitive fusion and dysfunctional metacognitive beliefs with depressive disorders. The understanding of these processes will enhance the clinician's knowledge to identify their role in psychopathology and the delivery of third-wave therapies in depressive disorders.

Materials and Methods

Study design

The study was cross-sectional and comparative deploying a non-probability convenience sampling technique.[15] Total of 80 participants were recruited, divided into 2 groups, with 40 participants in each group, namely; depressive disorders (DD) and healthy controls (HC). The participants in the DD group were recruited from the outpatient department (OPD) of Psychiatry of a tertiary care hospital of an urban locality and had a diagnosis of either major depressive disorder or recurrent depressive disorder while the HC group had the bystanders of the patients visiting non-Psychiatry OPD of the Hospital.

Males or females between 18-45 years of age with a minimum of 10 years of formal education and having a diagnosis of depressive disorders were included while those having any episode of hypomania or mania; suicidality, psychotic symptom, comorbid psychiatric disorder, organicity including; epilepsy, head injury and other neurological disorders, any chronic or terminal illness, or receiving any evidence-based psychotherapy in previous one year, or practicing yoga, meditation or mindfulness either currently or in the last 6 months were excluded. The HC had both sexes male and female of 18-45 years having a minimum of 10 years of formal education; without psychiatric morbidity, any neurological condition, any terminal illness, or practicing yoga, meditation or mindfulness either currently or in the last 6 months.

Assessment measures

Mini International Neuropsychiatry Interview (MINI 7.0.2)

It is a brief structured interview, designed to diagnose psychiatric disorders as per the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and the International Classi-fication of Mental and Behavioural Disorders (ICD-10).[16] MINI

employs different time frames for certain disorders: current, past, or lifetime. Psychometric examination of the MINI shows acceptable test-retest and inter-rater reliability.[17]

General Health Questionnaire (GHQ-12)

This study used the GHQ-12 proposed by Goldberg, it has good reliability (.88) and validity (.79).[18] This questionnaire includes 12 items and has a four-point Likert scale, with each item ranging from 0 to 3. All items were added to obtain the total score, making the score range 0-36. A total score < 3 indicates good health.[19]

Beck Depression Inventory (BDI-II)

It has 21 items to assess the severity of depression in an adult population and test-retest reliability is .73 to .96.[20] The scores range from 0-30 categorized as; 0-9 is normal; 10-18 indicates mild to moderate depression, 19-29 indicates moderate to severe depression and a score of 30 or more indicates extremely severe depression.[21]

Meta-Cognition Questionnaire-30 (MCQ-30)

It was developed to measure a range of dysfunctional metacognitive beliefs and Cronbach's alpha ranged from .72 to .93.[22] Each item is rated on a 4-point scale. It assesses the extent to which the person believes that worrying is helpful, worrying is uncontrollable and dangerous, lack of cognitive confidence, beliefs concerning the need to control thoughts and consequences of not controlling one's thoughts, and, the tendency to monitor one's thoughts and focus attention inwards. Total scores for the MCQ-30 and its subscales are obtained by summating all items and higher scores indicate higher levels of dysfunctional meta-cognitive beliefs.

Cognitive Fusion Questionnaire (CFQ-28)

The CFQ consists of 28 items rated on a 7-point scale. The questionnaire addresses a broad range of aspects of cognitive fusion, such as taking thoughts literally, seeing thoughts as reasons for action, taking a detached perspective on thoughts, and overanalyzing situations, rather than just focusing on the believability of thoughts. CFQ-28 has good internal consistency ($\alpha = 0.86$)[12] and test-retest reliability ($r = .79$, $p < .001$).[23] Total scores range from 28 to 196, with higher scores indicating greater cognitive fusion.

Procedure

The patients with depressive disorders were referred to the researchers for psychotherapy; consent was sought in compliance with the principles enunciated in the declaration of Helsinki.[24] Sociodemographic and clinical details were recorded and MINI 7.0.2 was administered to diagnose depressive disorders and to rule out comorbidities. The elicited co-morbidities were reported in the patient file keeping the treating team informed and these patients were excluded from the study but inducted for psychotherapy. Those recruited in the study were further assessed on BDI-II, MCQ30, and CFQ. After the completion of the assessment related to the current study, the participants were given an appointment for psychotherapy and they continued to seek treatment in the OPD of Psychiatry as usual.

The researcher approached the bystanders of the patients, visiting non-psychiatry OPDs, for seeking consent to participate. Those consented; their sociodemographic and clinical details were recorded. Those meeting the inclusion criteria were administered GHQ-12 and three participants had scores higher than the cut-off. Further, those having scores above the cut-off on GHQ-12 were administered MINI 7.0.2 and one participant was identified to have psychiatric morbidity. He was informed about the process of approaching Psychiatry OPD and with his verbal consent, his family was informed and guided about the process. While others meeting the criteria were assessed using BDI-II, MCQ, and CFQ. The assessment procedure with each participant in both groups ranged from 40-90 minutes.

Statistical analysis

The software statistical packages for the social sciences (SPSS -20) were used to analyze the data. The data were expressed in codes and analyzed using descriptive statistics. The t-test was used to compare the two groups (DD and HC). Correlation analysis was used to assess the relationship among the variables. Simple regression analysis was conducted to determine the predictors of depression.

Results

The differences between the two groups are displayed in Table 1, although the range of age and education appear similar the differences were statistically significant. Similar findings implied the

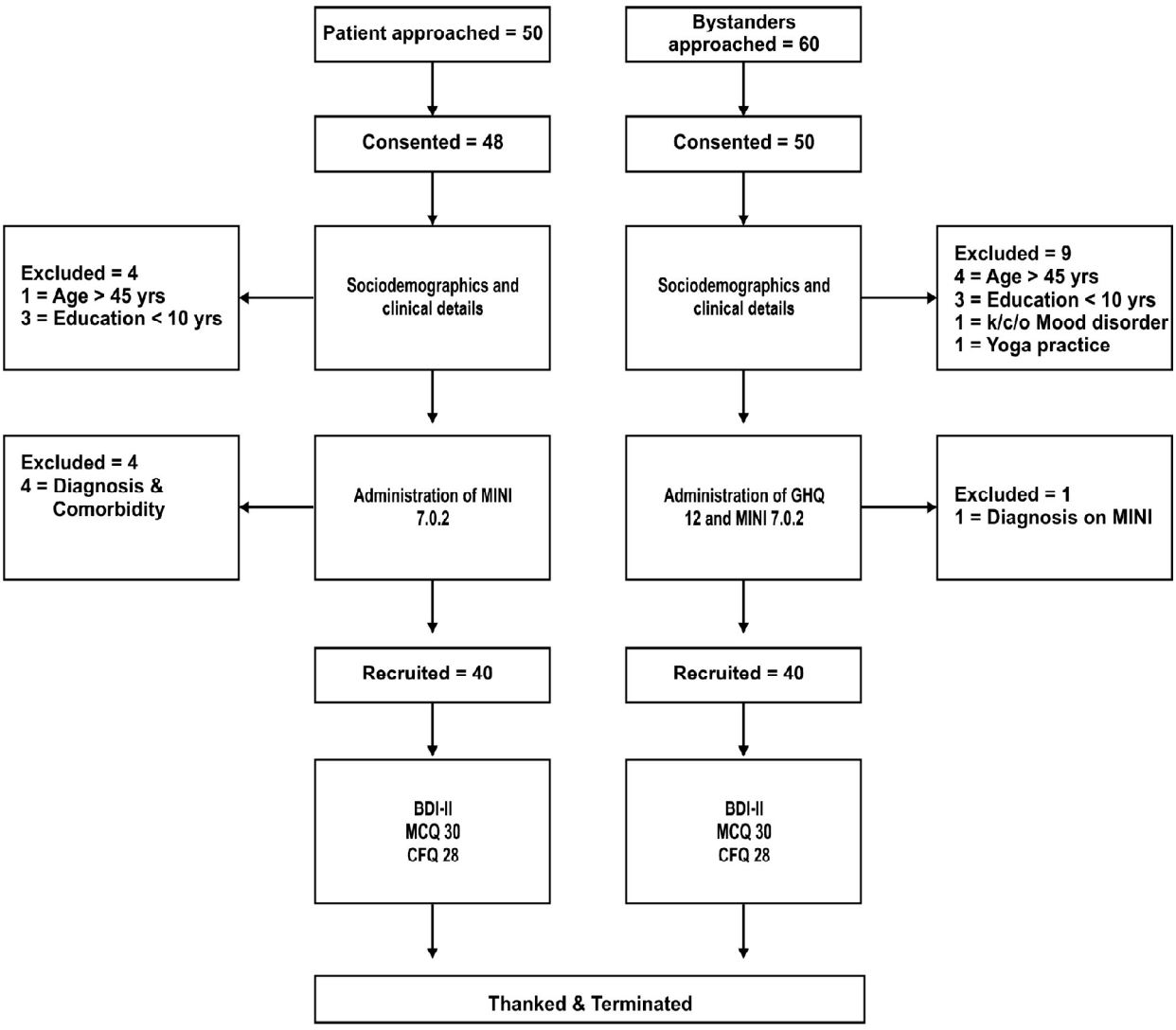

Fig. 1: COSORT Diagram depicting recruitment of participants

differences in the spread of marital and occupational status.

The two groups significantly differed on all assessment measures and the DD sample had higher mean scores on depression severity, cognitive fusion, and dysfunctional metacognitive beliefs than the HC sample.

Table 3 revealed depression was significantly correlated with cognitive fusion (r = .67 significant at $p < .01$) as well as dysfunctional metacognitive beliefs namely; the need for control (r = .58 significant at $p < .01$) and cognitive self-consciousness (r = .32 significant at $p < .01$) implying as depression severity increased the cognitive fusion and dysfunctional metacognitive beliefs also increased. In comparison, cognitive fusion was significantly correlated with dysfunctional metacognitive beliefs (r = .57 significant at $p < .01$) negative beliefs about uncontrollability and danger of worry (r = .67 significant at $p < .01$), need for control (r = .38 significant at $p < .015$), cognitive self-consciousness (r = .58 significant at $p < .01$) indicating cognitive fusion worsened dysfunctional metacognitive beliefs. However, in the HC sample, a considerable correlation was seen only between cognitive fusion and cognitive self-consciousness.

Further, regression analysis revealed the change in the dependent variable (DV) determined by the independent variable (IV). The depressive symptoms account for 48% of the total variation in cognitive fusion ($R^2 = .48$) and 39% variation in negative beliefs about uncontrollability and danger of worry,

Table-1: Descriptive statistics of sociodemographic details and scores on assessment measures in DD and HC groups

Variables		DD (n=40) M (SD) / *f* (%)	HC (n=40) M (SD) / *f* (%)	χ^2 /t	*p*
Age		35.13 (6.47)	35.82 (6.70)	48.42	.000***
Sex	Female	24 (60)	16 (40)	.000	1.000
	Male	16 (40)	24 (60)		
Education		12.47 (2.22)	13.30 (2.60)	47.26	.000***
Marital status	Unmarried	5 (12.5)	8 (20)	133.50	.000***
	Married	32 (80)	32 (80)		
	Divorced	1 (2.5)	0		
	Widow	2 (5)	0		
Occupation	Student	2 (5)	3 (7.5)	37.12	.000***
	Unemployed	1 (2.5)	1 (2.5)		
	Job	6 (15)	16 (40)		
	Business	13 (32.5)	7 (17.5)		
	Housewife	18 (45)	13 (32.5)		
Dx	MDD	34 (85)	–	18.69	.000***
	RDD	6 (15)	–		

***$p \leq .001$; **$p \leq .01$; *$p \leq .05$; M – Mean; SD – Standard deviation; *f* – Frequency; % – Percentage; Dx – Diagnosis; MDD – Major depressive disorders; RDD – Recurrent depressive disorders

Table-2: Comparing difference of scores on assessment measures between DD and HC groups using independent t-test (N=80)

Variables		DD (n=40) M (SD)	HC (n=40) M (SD)	t (df 78)	*p*
BDI		19.58 (4.09)	5.58 (1.65)	20.06	.000***
CFQ 28		120.68 (19.03)	42.90 (10.33)	22.71	.000***
MCQ 30	MCQ	69.80 (16.52)	46.23 (4.28)	8.73	.000***
	POS	11.53 (4.00)	9.93 (1.86)	2.29	.024*
	NEG	15.38 (4.17)	8.65 (2.07)	9.13	.000***
	CC	12.20 (5.51)	8.25 (1.74)	4.33	.000***
	NC	14.88 (4.44)	9.15 (1.48)	7.74	.000***
	CSC	15.83 (3.95)	10.20 (2.71)	7.43	.000***

*** – $p \leq .001$; ** – $p \leq .01$; * – $p \leq .05$; BDI – Beck depression inventory; CFQ28 – Cognitive Fusion Questionnaire; MCQ30 – Metacognitive Questionnaire; POS – positive belief about worry; NEG – negative beliefs about uncontrollability and danger of worry; CC – cognitive confidence; NC – need for control; CSC – cognitive self-consciousness

Table- 3. Correlation of symptom severity, cognitive fusion and dysfunctional metacognitive beliefs (N=80)

				DD Group (n=40)				
	BDI	CFQ 28	MCQ 30	POS	NEG	CC	NC	CSC
BDI	1.00	.67**	.30	.06	.58**	.15	.15	.32**
CFQ 28	–	1	.57**	.18	.67**	.29	.38*	.58**
				HC Group (n=40)				
BDI	1	.21	.20	.20	.07	.13	-.12	.23
CFQ 28		1	.10	.17	.00	-.30	-.29	.44**

*** – Correlation is significant at .001; ** – Correlation is significant at .01; * – Correlation is significant at .05. BDI – Beck depression inventory; CFQ28 – Cognitive Fusion Questionnaire; MCQ30 – Metacognitive Questionnaire; POS – positive belief about worry; NEG – negative beliefs about uncontrollability and danger of worry; CC – cognitive confidence; NC – need for control; CSC – cognitive self-consciousness

Table- 4. Relationship between IV and DV using regression analysis in DD group (n=40)

IV	DV	r	Regression						
			B	SE	F	Adjusted R^2	t	*p*	Beta
BDI	CFQ28	.71	.15	.02	37.70	.48	6.14	.000***	.71
	NEG	.64	. 63	.12	26.12	.39	5.11	.000***	.64
	CSC	.31	.32	.16	3.98	.07	1.99	.053	.31
CFQ28	MCQ30	.56	.64	.15	16.98	.29	4.12	.000***	.56
	NEG	.67	3.04	.55	30.60	.43	5.53	.000***	.67
	NC	.43	1.83	.63	8.47	.16	2.91	.006**	.43
	CSC	.49	2.37	.68	12.05	.22	3.47	.001**	.49

***$p \leq .001$; **$p \leq .01$; *$p \leq .05$

IV – Independent variable; DV – Dependent variable; r – Correlation; SE – Standard error; BDI – Beck depression inventory; CFQ28 – Cognitive Fusion Questionnaire; MCQ30 – Metacognitive Questionnaire; POS – positive belief about worry; NEG – negative beliefs about uncontrollability and danger of worry; CC – cognitive confidence; NC – need for control; CSC – cognitive self-consciousness

both predictive values being significant at $p < .001$. Similarly, cognitive fusion accounted for 29% variation in dysfunctional metacognitive beliefs ($R^2 = .29$, $p < .001$), 43% variation in negative beliefs about uncontrollability and danger of worry ($R^2 = .43$, $p < .001$), 16% variation in need for control ($R^2 = .29$, $p < .01$), and 22% variation in cognitive self-consciousness ($R^2 = .22$, $p < .001$).

Discussion

The findings unveiled no significant correlation of CF with either negative or positive beliefs or with worry but a positive correlation of CF with cognitive self-consciousness in the HC sample may be a risk factor for general health, psychological distress, or anxiety symptoms or affecting psychosocial well-being.[25,26] Though cognitive self-consciousness in the HC sample may only reflect a natural tendency to pay attention to one's thoughts but research also highlights if intrusions turn obsessional it can cause significant cognitive impairment.[27] However, no conclusion can be drawn for the HC sample except that they being the caregivers of patients visiting non-psychiatry OPDs may have been overladen with thoughts related to the setting that may have distorted the findings. Studies reveal that cognitive self-consciousness and thought-action fusion are the strongest predictors of obsessive-compulsive symptoms and health anxiety in the non-clinical population.[28,29] This suggests that dysfunctional MCBs insidiously dwindle cognitive and intellective processes paving the way to pathology.

The correlation of depressive symptoms with cognitive fusion and negative dysfunctional beliefs implied that as depression severity increased, the cognitive fusion and dysfunctional metacognitive beliefs worsened in the DD sample. CF accounted for dysfunctional metacognitive beliefs, and both are known to be detrimental to the psychopathology of depression.[30] The dysfunctional MCBs and CF reinforce each other while CF mediates these dysfunctional MCBs revamping the interpretation of internal experiences.[31] A systematic review of metacognitive beliefs uncloaks that dysfunctional metacognitive beliefs are significantly associated with emotional and psychological distress in psychiatric as well as non-psychiatric clinical conditions and non-clinical populations.[32] CF is a form of inferencing system that modifies information processing by emphasizing the role of attention paid to the sensory inputs and memories that are activated in response to the input.[33] Fusion, therefore, tends to augment the appraisal, which in a depressive state is predisposed by the cognitive triad. This signals that fusion may be a predictor of psychological distress and a maintaining factor interfering with treatment outcomes. The connection between impaired attention and mood-congruent memory retrieval is established in depressive disorders, and both affect information processing by relying on inferencing than inferring.[33] Consequently, the individual's response to a person or event is determined by the inferences made out of emotional processing than inferring reasons. Therefore, CF bolsters the beliefs based on one's past emotional responses or experiences and limits the cognitive capacity either to attend to or to evaluate the stimulus or both. The integral processes such as self as

context, detachment, and defusion in third-wave therapies help the individual to alter the interpretation of these dysfunctional beliefs thru increased awareness. Attention is elementary to vary the input as well as the processing of this input. The mindfulness techniques enhance the attention paid to the details of the input and the contextual factors while processing the information. These techniques further amend the role of fusion in erroneous processing and facilitate the reprocessing of the past by viewing the self as a context. CF is a significant mediator between negative affect and depressive symptoms affecting mental health and attentional training programs are potent in ameliorating depressive symptoms.[8,34] The attentional control moderated the association between CF and psychopathology, and the strength of CF decreased as attentional control increased.[35,36] The study, therefore, apprehends the role of cognitive fusion and metacognitive beliefs in information processing contributing to psychopathology. This learning can help the clinician to improvise service delivery by understanding the significance and superiority of mindfulness-based interventions.

Conclusion

It can be concluded that cognitive fusion and dysfunctional metacognitive beliefs can be a vulnerable factor in non-clinical population while in clinical population these can worsen the psychopathology and interfere in the treatment outcome. Third-wave therapies target these cognitive processes through awareness and psychological flexibility.

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Original Article

Patterns of psychiatric referrals to Consultation-Liaison Psychiatry at a tertiary care hospital in North India

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ABSTRACT

Background: *In a hospital setting, consultation-liaison psychiatry holds a special place. This study aimed to analyze the Consultation-liaison psychiatry service.* ***Methodology:*** *A hospital-based observational study using a consecutive sampling method was conducted among all the patients who were referred from ICU and Emergency over 6 months. Socio-demographic details and source of referral were recorded and a final psychiatric diagnosis was made as per ICD-10 diagnostic criteria.* ***Results:*** *Among 116 participants, majority was males (n=76, 65.5%), mostly between age group of 18-30 years (n = 86, 75%), high school graduates (n=64, 62.9%). Among the total 116 referrals, 72(62%) were from different Intensive Care Units (ICU) and 44(38%) were from the Emergency department. Among ICU referrals most common source was Surgical ICU (48%), followed by Cardiac ICU (18%). The most common psychiatric diagnosis observed among psychiatric referrals was mood disorders (n=44, 38%), followed by mental and behavioral disorders due to psychoactive substance use (n=21, 18%).* ***Conclusion:*** *Surgical ICU followed by cardiac ICU was the most common source of referral while mood disorders were the most common psychiatric diagnosis. Substance users also constituted a high proportion of psychiatric referrals.*

Keywords *- Consultation-Liaison Psychiatry, Hospital, ICU, Emergency*

Introduction

Mental disorder entails major clinical syndromes mostly marked by the distress caused by psychological and behavioral related symptoms which bring about loss of functioning.[1] The psychiatry department has a very vast role in a tertiary hospital that deals with both the OPD, IPD, ICU referrals, and Emergency referrals. The latter role is provided through the consultation-liaison psychiatric services.[2,3]

Consultation Liaison Psychiatry Services aims to improve the integration of mental health services into the general hospital system, providing specialist psychiatric services to patients however literature on consultation-liaison psychiatry is scarce in India specially in the northeast part of India.[4,5] Also, current literature available on patterns of psychiatric referral patterns in emergency and ICU settings has shown mixed results[6] hence keeping this in mind this study was planned to assess the socio-demographic factors and patterns of psychiatric morbidity among patients referred for psychiatric opinion in emergency and ICU of tertiary care hospital attached to a medical college in the geographical area of Rajasthan state of India.

Methodology

This was a hospital-based descriptive cross-sectional study conducted on emergency and ICU referral patients after obtaining approval from the

institutional ethics research committee and obtaining written informed consent from the patients. The study population includes 116 consecutive patients referred for psychiatric evaluations from various ICUs and the Emergency department of the hospital. The study period was from January 1, 2022, to June 30, 2022, that is, over 6 months.

Each patient underwent a detailed psychiatric evaluation by a consultant psychiatrist once they were medically stable. The details recorded include socio-demographic profiles, the department referred from, reason of referral, presenting complaint, and final diagnosis. Psychiatric diagnosis was made according to ICD-10 diagnostic criteria.[7]

The data obtained were analyzed using the SPSS software package (version 24, SPSS, inc., Chicago, USA).

Results

Table-1: Descriptive Statistics of Socio-demographic Variables

Variable	Frequency	Percentage
Sex		
Male	76	65.5%
Female	40	34.5%
Age		
18-30	86	75%
31-50	22	19%
51-70	8	6%
Marital Status		
Married	92	79.4%
Unmarried	18	15.5
Widow	4	3.4%
Separated	2	1.7%
Education		
Illiterate	17	14.6%
Primary level	26	22.4%
Higher Secondary level	64	55.2%
Graduate	9	7.8%
Family type		
Joint family	76	65.6%
Nuclear family	32	27.6%
Extended nuclear family	8	6.8%
Occupation		
Homemaker	23	20%
Student	53	45.7%
Businessman	14	12%
Skilled worker	10	8.5%
Unskilled worker	16	13.8%
Family history of psychiatric illness		
Positive family history	53	46%
No family history	63	54%

Out of 116 patients referred to the department of psychiatry, 76 (65.5%) were male and 40 (34.5%) were female. The patient age was in ranged from 18-70 years with the mean age being 26.6 years. Out of 116 included patients, the majority of the patients (92, 79.4%) were married, and 64 (55%) were educated to a higher secondary level. Seventy-six (65.6%) were living in a joint family, 23 (20%) were homemakers, 53 (45.7%) were students, 14 were businessmen, 10 were skilled workers and 16 were unskilled workers. Among the referred patients only 53 (46%) patients had a positive family history of psychiatric illness. (Table 1)

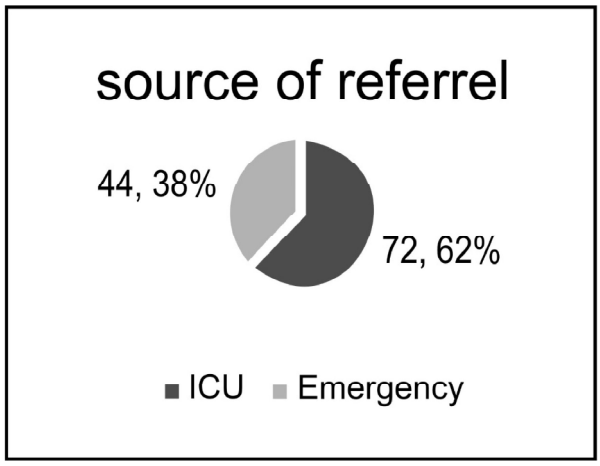

Fig. 1: Source of referral

Among the total 116 referrals, 72 (62%) were from different Intensive Care Units (ICU) and 44 (38%) were from the Emergency department.

Out of the 72 (62%), ICU referral's most common source was Surgical ICU (48%), followed by Cardiac ICU (18%), Neuro ICU (12%), Medical ICU (10%), Renal ICU (8%) and Respiratory ICU (4%). (Table-2)

The most common diagnosis observed among psychiatric referrals was mood disorders (n = 44, 38%), followed by mental and behavioral disorders due to psychoactive substance use (n = 21, 18%), Neurotic, stress-related, and somatoform disorders (n = 17, 15%), schizophrenia, schizotypal and delusional disorders (n = 15, 13%), organic including symptomatic mental disorders (n = 09, 07%) and interestingly no psychiatric comorbidity was found in 10 (09%) psychiatric referrals. (Table 3, Figure 3)

Table-2: Source of referral

Source of referral	Number	Percentage
Intensive Care Unit(ICU)	72	62%
Emergency Department	44	38%

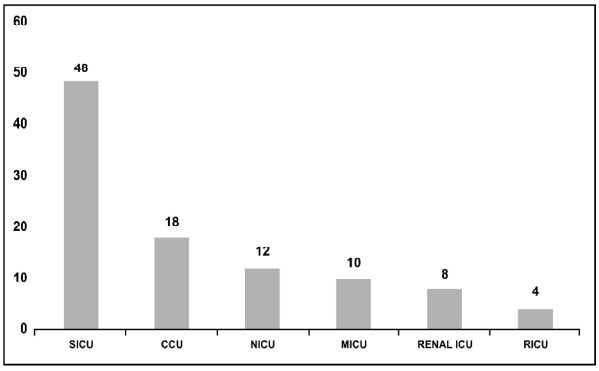

Fig. 2: Source of Intensive Care Unit (ICU) referrals.

done by Bhogale et al[9] reporting 60% and 58% male participants as reported by another similar study done by Keertish et al.[8]

The majority of participants in our study belonged to the 18-30 year age group with a mean age of 26.6 (± S.D.) years**.** Similar findings were also reported by another study in which also the majority of participants (60%) were less than 40 years of age[4,5] Another study done by Hossain et al also showed a similar pattern (41%) of age group among the patients referred to the psychiatric department.

A study done by Algin et al[10] showed a maximum of the referred patients were married (65.17%) and were educated till higher secondary class. In our study also, the majority of patients were married (79%) and studied till higher secondary (55%).

Table-3: Psychiatric Diagnosis as per ICD-10

Diagnosis	Number of cases (n=116)	Percentage (100%)
Mood disorder (F 30-39)	44	38%
Mental and behavioral disorders due to psychoactive substance use (F 10-19)	21	18%
Neurotic, stress-related, and somatoform disorders (F40-F48)	17	15%
Schizophrenia, schizotypal and delusional disorders (F20-F29)	15	13%
Organic, including symptomatic, mental disorders (F00-F09)	09	07%
No Psychiatric diagnosis	10	09%

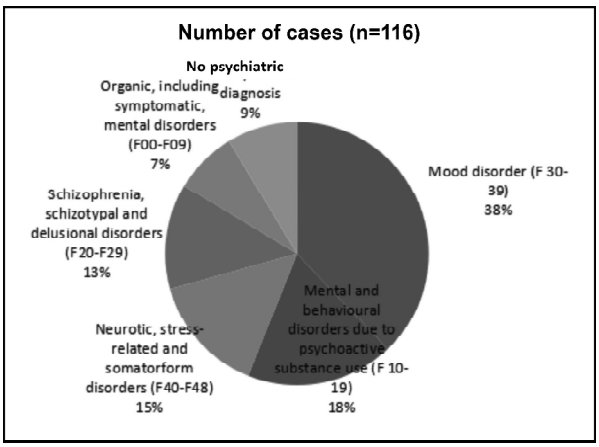

Fig. 3: Psychiatric Disorders as per ICD-10 diagnostic criteria

Discussion

This study was done in an attempt to recognize the pattern of psychiatric referrals in a tertiary hospital located in a rural area of Jaipur, Rajasthan. In our study the majority of participants were males and our findings were in resonance with the studies

Comorbidity of medical/surgical illness with a psychiatric disorder is common. This study looked into the psychiatric morbidity in patients referred to us from other departments. Interestingly, some patients (10) received nil psychiatric diagnosis and most of them were participants who required psychiatric clearance for either renal transplant surgery or any other surgeries.[11,12]

When the analysis was done for psychiatric diagnosis among referred patients according to ICD-10 it was found that mood disorder was the most common one (38%) in our study which was seen similar in a study done by K.K. Verma et al around 38.67%.[13] Substance abuse was the reason for 18% of cases of total cases referred which was similar to a study done by Singh et al[14] with 14.5% of referred cases. In our study Neurotic stress-related and somatoform disorders were found 15% of the referred cases which was less than the previous study done by Bhogale et al.[9] Among the referred patients schizophrenia, schizotypal and delusional disorders

were 13% which was similar to the study done by Bhatia et al[15] which was around 10.6% which was much less than the study done by Bhogale et al.[9] Organic including symptomatic mental disorders was the reason for 7% of cases which was much less compared to previously done studies.[9,15] An interesting fact that was also noted in the above study was around 9% of the patient referred had no psychiatric diagnosis similar was seen in a study done by Keertish et al.[8]

Conclusion

The majority of referrals were seen from different ICUs as compared to the emergency department and it was also noted that most referred patients were young adults. Out of the major population mostly were diagnosed with mood disorder followed by substance use disorder.

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Original Article

Anxiety and depression in females with (conversion) dissociative disorder

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ABSTRACT

Background: *According to the literature, anxiety, and depression are the most common psychiatric disorder in patients suffering from conversion disorder.* ***Aim:*** *To evaluate comorbid anxiety and depression in females with conversion disorder.* ***Materials and Methods:*** *One hundred and sixty consecutive females already diagnosed with conversion attending psychiatric OPD of a tertiary care hospital attached to a medical college were evaluated for socio-demographic characteristics and clinical presentations. These patients were also rated on the Hamilton depression rating scale (HAM-D) and Hamilton anxiety rating scale (HAM-A).* ***Results:*** *The most common subtype of conversion disorder was dissociative convulsion seen in 35% (n = 56) of participants, followed by dissociative motor disorder in 34% (n = 54). The mean (SD) anxiety score (HAM-A) was 11.2(2.21) and the mean depression score (HAM-D) was 12.8 (2.25). Around 64% (n = 102) participants had mild depression (mean = 09.15 ± 1.39) and 11% (n = 18) had moderate depression (mean = 18.27 ± 1.90) while 9% (n = 14) of participants were suffering from mild anxiety (mean = 10.25 ± 1.25) and 2% (n = 03) with moderate anxiety (mean = 15.67 ± 1.15). In the depression group, significant associations were observed only with education (p = 0.02) and occupation (p = 0.04) while in the anxiety group no significant association was found with any socio-demographic or clinical variable.* ***Conclusion:*** *Our study has revealed a high prevalence of comorbid depression and a modest prevalence of anxiety in females with conversion disorder.*

Keywords: *Conversion, Dissociative, Anxiety, Depression, Females.*

Introduction

The word *conversion* refers to the substitution of a somatic symptom for a repressed idea termed conversion. Conversion disorder in DSM-V is defined as a deficit of sensory or motor function that cannot be explained by a medical condition and where psychological factors are associated with the deficit because symptoms are preceded by conflicts or other stressors.[1] The International Classification of Diseases 10 revision (ICD-10) classifies conversion disorder as a dissociative disorder, under the F44 category (neurotic, stress-related, and somatoform disorders).[2]

Briquet and Charcot contributed to the development of the conversion disorder concept by associating the presence of symptoms with a traumatic event. According to the literature, emotional stress with conflict in the presence of a series of environmental, biological, and personal vulnerability factors or as a part of the current life situation plays an important role in the development of conversion disorder.[3]

The average incidence of conversion disorder is approximately 4 to 12 per 100000 per year. It is a frequent presentation in developing countries and a high prevalence of conversion disorder has been reported in India, especially in young adults, the poor, females, and those living in joint families. Other studies have also reported a high prevalence of illiterates and married housewives.[4-9] It is estimated

that approximately 20%–25% of patients in a general hospital setting present with symptoms of conversion and around 5% of patients in this setting meet the criteria for full syndrome.[10]

It is argued that conversion disorder is a defensive mental process and a "shut-off mechanism" against severe anxiety and traumatic events, especially involving a serious threat to health or life.[6]

Almost all patients with severe and chronic dissociative disorders are chronically depressed[11,12] but the opposite is also true to some extent.[13] Similar observations have been made on a large community sample of women about conversion symptoms.[14]

According to literature, depression, and anxiety frequently accompany conversion symptoms[15] with depression being the most common co-morbid diagnosis, occurring in 12%–100% and anxiety disorders in 11%–80%.[16]

The western literature has reported anxiety and depression as the most common psychiatric disorder in patients suffering from conversion disorder[17] however there is a paucity of literature assessing co-morbid anxiety and depression in Indian patients. Hence this study was planned to address the existing gap in the literature on this issue.

Material and Methods

After approval from Ethics Committee, this observational cross-sectional study was carried out in the department of psychiatry of a tertiary care hospital attached to a medical college. The study period was 5 months (January – May 2022). We included one hundred and sixty consecutive females of age between 18-50 years who were already diagnosed as suffering from conversion disorder as per the diagnostic criteria laid down by ICD-10 (International classification of mental disorders, 10th edition) and attending the psychiatry OPD for treatment.

The patients suffering from physical illnesses, organic brain disease, psychiatric co-morbidity other than depression and anxiety, substance abuse, learning disability, language barriers, and those who refused to participate in the study were excluded from the study.

All of the participants were first administered a semi-structured performa which was designed for capturing the socio-demographic and clinical data followed by the assessment tools mentioned below for assessing the severity of depression and anxiety respectively among the participants.

Assessment tools

Hamilton depression rating scale (HAM-D). - This scale is used to measure a patient's level of depression and changes in its severity. A score of 0–7 is generally accepted to be within the normal range (or in clinical remission), while a score of 20 or higher (indicating at least moderate severity). The following cut-offs were used for HAM-D score interpretation: no depression (0-7); mild depression; (8-16); moderate depression (17-23) and severe depression ($\geq$24).[18]

Hamilton Anxiety Rating Scale (HAM-A). - The scale is utilized to determine a patient's anxiety level and symptom profile, as well as to measure changes in severity. It is a 5-point Likert-type scale comprising a total of 14 questions about both somatic and mental symptoms. Each item is scored on a scale of 0 to 4, with a total score of 0-56. The following cut-offs were used for interpreting HAM-A scores: 0-7 = no / minimal anxiety; 8-14 = mild anxiety; 15-23 = moderate anxiety and 24 or greater = severe anxiety.[19]

The data thus collected were compiled and analyzed further. The quantitative data were analyzed by mean and standard deviation, and qualitative data were analyzed in percentage. The statistical analysis was performed by using SPSS 22 version software (IBM SPSS Statistics, New York, United States).

Results

The socio-demographic characteristics of the 160 patients are presented in Table 1. One hundred five (66%) participants were in the age group of 18-30 years, 129 participants (81%) were educated till 12th class, 72% (n = 116) were living in a joint family, and the majority were married (59%, n = 94), homemaker (59%, n = 94) and from a rural background (79%, n=126). Ninety participants (56%) were having more than 6 months of duration of illness, 9 participants (5%) had a history of sexual abuse and 11 participants (7%) had a history of physical abuse in childhood. The mean (SD) anxiety score (HAM-A) was 11.2 (2.21) mean depression score (HAM-D) was 12.8 (2.25) respectively.

The most common subtype of conversion

Table-1: Socio-demographic and clinical profile of participants

Socio-demographic and clinical profile of participants	
Variable	Number (%)
Age	28.3 (9.31), Mean (S.D)
Age Category	
18-30	105 (66%)
31-50	55 (34%)
Education	
Till 12th class	129 (81%)
Graduate and above	31 (19)%
Type of Family	
Nuclear	35 (22%)
Joint	116 (72%)
Extended Nuclear	09 (06%)
Marital status	
Single/Divorced/Widowed	66 (41%)
Married	94 (59%)
Occupation	
Unemployed	06 (04%)
Student	56 (35%)
Homemaker	94 (59%)
Employed	04 (02%)
Domicile	
Rural	126 (79%)
urban	34 (21.2%)
Duration of illness	
< 6 months	70 (44%)
> 6 months	90 (56%)
History of childhood abuse	
Sexual abuse	09 (05%)
physical abuse	11 (07%)
None	46 (88%)
Family history of psychiatric illness	
No	142 (89%)
Yes	18 (11%)
Anxiety (HAM-A score)	11.0 (2.21), Mean (S.D)
Depression (HAM-D score)	12.8 (2.25), Mean (S.D)

disorder was dissociative convulsion seen in 35% (n = 56) of participants, followed by dissociative motor disorder 34% (n = 54), dissociative trans and possession disorder (n = 13, 8%), dissociative amnesia (n = 12, 7%), dissociative anaesthesia and sensor loss (n = 12, 7%) and dissociative stupor (n = 03, 3%).

As shown in Table 3a, out of one hundred sixty participants 64% (n = 102) had mild depression (mean = 09.15 ± 1.39) and 11% (n = 18) had moderate depression (mean = 18.27 ± 1.90).

As visible in table 3b, 9% (n = 14) of participants were suffering from mild anxiety (mean = 10.25 ± 1.25) and 2% (n = 03) with moderate anxiety (mean = 15.67 ± 1.15).

Table-2: Subtype of Dissociative (conversion) disorder

Subtypes	Number (%)
Dissociative Convulsions	56 (35%)
Dissociative Motor Disorder	54 (34%)
Dissociative Trance Possession Disorder	13 (08%)
Dissociative Amnesia	12 (07%)
Dissociative anesthesia and sensory loss	12 (07%)
Mixed and other dissociative disorders	10 (06%)
Dissociative Stupor	03 (03%)
Dissociative Fugue	00 (00%)

Table-3a: Severity of depression in females with conversion disorder

Severity of Depression	HAM-D score Mean (SD)	(n = 160, %)
None (0-7)	05.91 (1.39)	40 (25%)
Mild (8-16)	09.15(1.34)	102 (64%)
Moderate (17-23)	18.27(1.90)	18 (11%)
Severe (≥ 24)	00.00(0.00)	0.00 (0.00)

Table - 3b: Severity of anxiety in females with conversion disorder

Severity of anxiety	HAM-A score Mean (SD)	(n = 160, %)
None (0 -7)	04.93 (1.60)	143 (89%)
Mild (8-14)	10.25 (1.25)	14 (09%)
Moderate (15-23**)**	15.67 (1.15)	03 (02%)
Severe (≥24)	00.00 (0.00)	00 (0.00)

As shown in Table 4, in the anxiety group no significant association was found with any socio-demographic and clinical variable such as age, education, occupation, marital status, and domicile.

In the depression group, significant associations were observed with education (p = 0.02) and occupation (p = 0.04). No association was found with other socio-demographic and clinical variables.

Discussion

The majority of the participants in our study belonged to the age group of 18-30 years and our findings were in resonance with the findings of other similar studies which also reported the majority of young female participants in their sample[20-23] but were in contrast with the findings of one other study in which majority of participants were in the age group of 30-40 years.[24]

In our study, the majority of the participants studied till senior secondary (81%), were

Table 4: Descriptive statistics for the socio-demographic characteristics and their association with anxiety and depression using Chi-Square Tests

Variables	Anxiety			Depression		
	No Non=143 (89%)	Yes n=17 (11%)	P	No n=40 (25%)	Yes n=120 (75%)	P
Age group/years			0.11			0.56
18-30	94 (90%)	11 (10%)		28 (27%)	77 (73%)	
31-50	49 (89%)	06 (11%)		12 (22%)	43 (78%)	
Marital status			1.00			1.00
Married	84 (89%)	10 (11%)		24 (25%)	70 (75%)	
Single/divorced/widowed	59 (89%)	07 (11%)		16 (25%)	50 (75%)	
Education level			1.00			0.02
Till 12th class	129 (89%)	14 (11%)		27 (21%)	102 (79%)	
Graduate and above	28 (90%)	03 (10%)		13 (42%)	18 (58%)	
Domicile			1.00			0.65
Rural		14(11%)		33(27%)	93 (73%)	
urban		03(09%)		07(21%)	27 (79%)	
Occupation			0.70			0.00
unemployed	06 (100%)	00		00 (00%)	06 (100%)	
Student	49 (88%)	07 (12%)		12 (22%)	44 (78%)	
Homemaker	84 (89%)	10 (11%)		24 (26%)	70 (74%)	
Employed	04 (100%)	00		04 (100%)	00 (00%)	
Duration of illness			0.61			0.38
< 6 months	64 (91%)	06 (09%)		21 (30%)	49 (70%)	
> 6 months	78 (88%)	11 (12%)		19 (22%)	70 (78%)	
Childhood abuse			0.11			0.20
Sexual abuse	09 (100%)	00		00	09 (100%)	
physical abuse	08 (73%)	03 (27%)		03 (27%)	08 (72%)	
None	126 (90%)	10 (10%)		37 (27%)	103 (73%)	

P* < 0.05, p**< 0.01

homemakers (59%), and were married (59%). The possible reason for the above findings could be because, in the geographical area where this study was conducted, females of this age group are supposed to marry early and share the burden of the family at a comparatively younger age. Also, most females go to school till primary or secondary classes before getting married. Our sample characteristic was comparable to similar studies conducted on patients with conversion disorder[23,25,26] but is in contrast with the finding of one another study[27] in which the majority sample was single.

There was a preponderance of rural population (79%) in our study and which could be because the majority of patients who visit this hospital where this study was conducted are from rural areas as it is situated in the suburban area and shares its proximity to a lot of villages. On the other hand, few studies reported a higher percentage of urban patients in their study which is in contrast to the findings of the current study.[27,28]

In our study, around 72% of the study subjects came from joint families and similar findings were reported in another study.[20] However, few other studies reported that the majority of their study subjects belonged to nuclear families.[8,29]

High frequencies of childhood sexual, emotional, and physical abuse have been reported among conversion disorder patients in western literature,[30] however the same has not been reported in Indian studies on conversion disorder patients.[1] In our study prevalence of childhood sexual abuse and physical abuse was 5% and 7% respectively and our finding was somewhat in resonance with the findings of a Turkish study which reported childhood physical abuse as 8.9% and sexual abuse as 2.5% in their study population.[31] In contrast, a very high rate of physical abuse (44.7%) and sexual abuse (26.3%) was reported by one another study.[32]

Dissociative convulsion (35%) was the most common subtype followed by dissociative motor symptoms (34%) in our study, none of the patients

had a diagnosis of dissociative fugue, and our findings are in the line with the existing literature[30] but in contrast with one another study, where dissociative stupor was most common presentation.[17]

Seventy-five percent of participants in our study were suffering from depression thus our study further potentiates the findings of several other international studies which also have reported a much higher prevalence of depression ranging from 50% to 84% in conversion disorder patients[27,25,34,35] but were in contrast with findings of few other studies which have reported a comparatively low prevalence of depression in conversion disorder patient.[22,33] The possible reason for this could be because of differences in sample size, sample population, methodology, and assessment tools.

We observed a comparatively low prevalence (9%) of anxiety in females with conversion disorder and our findings are in line with the findings of some other studies which have also reported a low prevalence of anxiety disorder in conversion disorder patients.[17,36] In contrast, other studies have revealed a much higher percentage of anxiety (35%, 60%)[33,35] in conversion disorder patients.

Limitations

Our study is subjected to several limitations. First of all, the study included a modest number of participants restricting statistical power. Large sample size would have provided a better understanding of the relationship between variables studied in the study. Secondly, participants were chosen through a convenient, non-probabilistic sampling method, which may not adequately represent the entire population. Lastly, being a cross-sectional observational study, any causal relationship cannot be established between the variables studied.

Conclusion

To conclude, our study has revealed a high prevalence of comorbid depression and a modest prevalence of anxiety in females with conversion disorder. Patients suffering from conversion disorder should be thoroughly evaluated and adequately managed for comorbid anxiety and depressive symptoms for a better outcome.

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Original Article

Comparative Study of Phenomenology of Major Depressive Disorder among Young Adults, Middle and Old Age Group using HAM-D 21 Scale

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ABSTRACT

Background: *Depression is the most common mental health problem affecting individuals of all age groups and cultures. Old age population is also increasing in our country. It is a well known fact that risk factors for depression are different in each age group adults. However, It is the matter of debate that whether phenomenology of Major Depressive Disorder has any association with age.* ***Objectives:*** *The objective of the study is to compare the phenomenology of major depressive disorder (MDD) among young adults, middle and old age group using HAM-D 21 Scale.* ***Methods:*** *A cross-sectional, observational, comparative study was carried out at a tertiary-care hospital. Patients with depression in each age group were selected using convenient sampling from the out-patient and in-patient facility. Depression was diagnosed using DSM 5 diagnostic criteria. MMSE scale was used to rule out Dementia in elderly population. A total of 122 participants were included in the study. A semi-structured proforma was used to collect the personal and clinical details, Socio-demographic Status through Modified Kuppuswamy Scale and phenomenology of Major Depressive Disorder was assessed using 21 items related to depression by applying HAM-D 21 scale. ANOVA Test and SPSS 23 version software was used for statistical analysis.* ***Results:*** *Young age group participants scored significantly higher for depressed mood (P value = 0.016), feeling of guilt (P value =0.001) and weight loss (P value = 0.024) symptoms as compared to middle and old age group participants. Insomnia (middle of night) symptom was scored significantly higher in middle age group (P value = 0.046) as compared to young age group and old age group.* ***Conclusions:*** *This study concludes that phenomenology of MDD has correlation with age. Young age group adults were having more severity of depressed mood, feeling of guilt and weight loss symptoms as compared to middle and old age group participants. Sleep (intermittent) symptom was found to be more disturbed in middle age group as compared to young age group and old age group. These differences are significant.*

Key words: *Phenomenology, Major Depressive Disorder (MDD), Hamilton rating scale for depression (HAM-D) 21*

Introduction

Depression is very common mental health problem affecting individuals of every age groups and cultures.[1] It is also leading cause of disability and has a major factor towards global burden of disease. Epidemiological studies show that the prevalence and clinical presentation of depression varies with age. A U-shaped relationship between age and depression has been found, with younger age groups having increased rates of depression,

lower rates in the middle age groups, and then again increasing rates in the older age groups.[2,3] Since older population are growing at a fast speed and because depression is one of the most common psychiatric disorders affecting old age, the future of depression will be significant.[4] One meta-analysis study estimated the prevalence of depression among Indian elderly (above 60 years) population as 34.4%.[5] Looking at the high prevalence of depression in the elderly and continuous increase in old age population, it is important for the health care system to recognize these individuals. Such challenge can be met if the phenomenology of Unipolar depressive disorder in the old age is better known.

Among elderly people, chronic diseases, restricted mobility, bereavement, elderly abuse, isolation, and financial loss are most common risk factors for depression, in addition to common risk factors in all age groups.[6] Consequently, elderly persons with depression have significantly higher suicidal and non-suicidal mortality.[7] Possible reasons for a different presentation of late-life depression are the overlap of somatic symptoms of depression and physical disease in old age, and socio-cultural factors such as the minimal expression of sadness in the current cohort of old people not used to complaining about depressed mood.[8] Also, age-related biological and psychological factors may underlie a different phenomenology of late-life and early-life depression. It is evident from previous literature and studies that old age group shows somewhat different phenomenology of depression than their younger counterpart.[9-12] On the contrary, some studies did not support the concept of influence of age on the phenomenology of depressive disorder.[13,14] This study is intended to investigate about differences in phenomenology of Major Depressive Disorder among various adult age groups for the purpose to identify Depressive Disorder as early as possible. Early identification of Depression will help to fill the treatment gap and hence improve the quality of life of an individual especially old age population.

Materials and Methodology

Study Design

The study was a cross-sectional, observational and comparative study among young, middle and old age patients suffering from Major Depressive Disorder attending the department of psychiatry. At the time of initial registration, patients are evaluated by trained psychiatrists and treatment is instituted. The patients are then evaluated in detail as early as possible and the diagnosis is made by consultants as per DSM 5 diagnostic criteria.

Subjects

Adult patients suffering from major Depressive disorder (diagnosed as per DSM 5) and those who signed the consent form were included in the study as participants in the duration of 12 months (July 1, 2019 - June 30, 2020). Participants were then segregated into their respective age groups that is young age adults (18-44 years), middle age adults (45-59 years) and old age adults (60 years and above) according to the age criteria suggested by Zisook S et al.[15] Patients below 18 years, suffering from mental retardation, other major neurological disorders, substance use disorders, elderly patients with MMSE score less than 25 and patients taking psychotropic drugs which affects phenomenology of depression were excluded. 160 patients were found eligible for the study. However, 18 patients did not given the consent, 12 patients withdrawn consent during the interview and 8 elderly patients scored less than 25 on MMSE Scale were excluded from the study. A total of 122 participants were included in the study.

Tools

Diagnostic and statistical manual of mental disorder – 5 (DSM-5): Major Depressive Disorder diagnostic criterion was used.

Mini-mental state examination scale: MMSE was used to rule out dementia (score less than 25).

Hamilton rating scale for depression (HAM-D) – 21:[16] it was used to record the phenomenology of MDD for the comparison among the various age groups. It is a objective scale and first 17 items of the scale are used to assess depression. The total score is obtained by summation of each item scores, 0-4 (symptom is none, mild, moderate and severe) or 0-2 (absent, slight and present). The score range from 0 to 50 for the 17 items of the scale. Scores are stratified as 0 to 7 (normal), 8 to 13 (mild depression), 14 to 18 (moderate depression), 19 to 22 (severe depression) and more than 22 (very severe depression).

Assessment

A semi structured proforma was used to record the clinical characteristics through history sheet. Socio-demographic Status was assessed through Modified Kuppuswamy scale and phenomenology of Major Depressive Disorder was assessed using 21 items related to depression by applying HAM-D 21 scale.[16]

Statistical Analysis: Data was entered in Microsoft excel and appropriate tables are made for each symptom item in HAM-D 21 scale and then were compared among three age groups using ANOVA statistical test and SPSS 23 version statistical software. P value less than 0.05 was taken as significant.

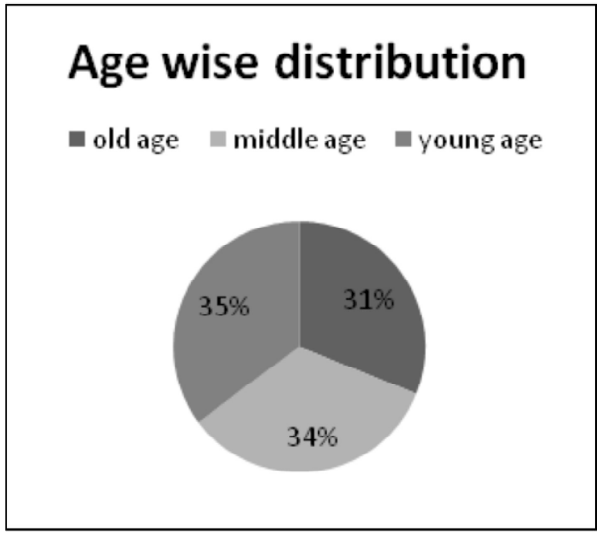

Fig. 1: Age wise Distribution of participants

Table-1: Severity of Depression among various age groups

	Young (n = 43)		Middle (n = 41)		Old (n = 38)	
HAMD Score	**No.**	**%**	**No.**	**%**	**No.**	**%**
8-13 (mild)	1	2.33%	0	0.00%	1	2.63%
14-18 (moderate)	8	18.60%	10	24.39%	8	21.05%
19-22 (severe)	7	16.28%	11	26.83%	17	44.74%
≥ 23 (very severe)	27	62.79%	20	48.78%	12	31.58%
Total mean score	22.79 ± 4.59		22.51 ± 4.83		21.03 ± 3.27	

P value = 0.153

Table – 2: Comparison of phenomenology of MDD among various adult age groups (HAM-D 21)

Variable	Younger	Middle	Old	P Value
	MEAN ± SD	**MEAN ± SD**	**MEAN ± SD**	
Depressed Mood	2.02 ± 0.67	1.76 ± 0.66	1.63 ± 0.49	**0.016**
Feeling of Guilt	1.56 ± 0.67	1.20 ± 10.1	0.76 ± 0.97	**0.001**
Suicide	2.33 ± 1.11	1.88 ± 10.8	2.00 ± 1.12	0.160
Insomnia (Early in night)	1.58 ± 0.59	1.49 ± 0.60	1.47 ± 0.51	0.643
Insomnia(Middle of night)	0.91 ± 0.61	1.10 ± 0.70	0.74 ± 0.60	**0.046**
Insomnia (Early in morning)	1.21 ± 0.60	1.32 ± 0.76	1.34 ± 0.63	0.628
Work and Activities	2.95 ± 0.75	2.90 ± 0.83	2.74 ± 0.83	0.458
Retardation	0.98 ± 0.71	0.90 ± 0.77	1.00 ± 0.62	0.809
Agitation	0.77 ± 0.75	0.73 ± 0.63	0.55 ± 0.76	0.364
Anxiety psychic	1.88 ± 0.96	1.83 ± 0.92	1.76 ± 1.08	0.859
Anxiety somatic	1.42 ± 0.66	1.54 ± 0.50	1.47 ± 0.51	0.635
Somatic Symptoms(Gastro-intestinal)	0.86 ± 0.47	0.95 ± 0.67	0.95 ± 0.57	0.715
General Somatic Symptoms	1.42 ± 0.50	1.54 ± 0.50	1.45 ± 0.50	0.539
Genital Symptoms	0.49 ± 0.63	0.51 ± 0.71	0.58 ± 0.68	0.826
Hypochondriasis	0.72 ± 0.85	1.34 ± 2.0	1.16 ± 0.72	0.093
Loss of weight	1.19 ± 0.66	0.90 ± 0.74	0.76 ± 0.71	0.024
Insight	0.51 ± 0.51	0.63 ± 0.54	0.66 ± 0.53	0.399
Diurnal Variation	0.63 ± 0.49	0.63 ± 0.54	0.53 ± 0.51	0.578
Depersonalisation and Derealization	0.16 ± 0.37	0.15 ± 0.42	0.21 ± 0.41	0.765
Paranoid Symptoms	0.47 ± 0.70	0.56 ± 0.81	0.47 ± 0.73	0.813
Obsessional Symptoms	0.07 ± 0.26	0.02 ± 0.16	0.03 ± 0.16	0.692

Statistically significant values ($p < 0.05$) were found in the Depressed mood, Feeling of Guilt, loss of weight and Insomnia (middle of night) HAM-D 21 scale items.

Results

Total of 122 participants with diagnosis of Major Depressive Disorder (as per DSM V) who were in active phase of depression were included. It was found that mean age for young age group was 28.2 years, middle age group was 49.5 years and old age group was 64.7 years respectively. Number of participants showed almost equal distribution among age groups. Majority of participants were male in young (62.79%) and old (65.79%) age groups whereas females were in majority in middle age group (51.22%). Overall, males (59.02%) were more. Majority of participants were from Hindu community (90.16%). Most of Participants were married (72.13%) and belonged to nuclear family type (81.15%). Majority belonged to rural background (54.92%). Majority of Participants came from two Socio-economic Status Categories that is upper lower (39.34%) and lower middle (30.33%). Majority of participants were found to be suffering from very severe depression (48.36%) according to the severity category mentioned in HAM-D Scale. Majority of participants in young (62.79%) and middle (48.78%) age group were suffering from very severe depression whereas in old (44.74%) age group majority of participants were found to be suffering from severe depression. Young age group participants scored significantly higher for depressed mood (P value = 0.016), feeling of guilt (P value =0.001) and weight loss (P value = 0.024) symptoms as compared to middle and old age group participants. Sleep (intermittent) symptom was scored significantly higher in middle age group (P value = 0.046) as compared to young age group and old age group. Other symptom items of HAM-D 21 Scale were not found to have statistically significant difference among young, middle and old age groups.

Discussion

Our studycompared the phenomenology of depression among young, middle and old age group adults using HAM-D 21 Scale. It was found that nearly half of participants were suffering from very severe depression. Mean severity scores of each age group were found to be equivalent. There was no significant difference found between mean HAM-D 21 score and age. Similar finding was seen in Shrivastava et al.[9] The probable cause of increased severity in study participants could be due to the poor mental health awareness within community which led to decline in treatment seeking behaviour and patients come to hospital only when they are severely affected by mental illness. Also, this study was hospital based study which could have led to overrepresentation of severely depressed participants in the study.

In our study, young age group adults showed more severity on depressed mood item and feeling of guilt symptom item as compared to other age groups that is young adults expressed negative cognition more readily than other age groups. Shrivastava et al[9] and Shahpesandy et al[12] also found similar statistically significant results in which mean score of depressed mood was found to be more in young as compared to old age group. On the contrary, Tan et al[13] and Stage et al[14] did not found any significant difference between different age groups. This difference can be due to the fact that elderly patients seem to be more reluctant in reporting that they have a sad mood, and their depression is mostly masked.[17,18] Also, the psychological maturation achieved with increasing age reduces the vulnerability of low self esteem and feeling of guilt. Also, as individual ages, their belief to be able to control their life declines, thus limiting the guilt feeling. For example, in old age retirement, widowhood and health problems are beyond individual control.[19]

In our study, we found that majority of participants in middle age group showed more disturbances in Insomnia (Middle of night) as compared to young age group and old age group. Also, difference was found to be statistically significant. We also found that Insomnia (early in morning) was increased in old age group as compared to other age group but the difference was not significant. However, Shrivastava et al[9] and Shahpesandy et al[10] found significant difference in disturbance in sleep (early in morning) in old age group as compared to younger age group.

In our study, Somatic symptoms were more common in middle and old age participants.

However, no significant difference was found between Somatic (Gastro-intestinal) (general) symptom and age. Likewise, Shrivastava et al,[9] Shahpesandy et al[10] and Hegeman JM et al[11] found that elderly patients with depression reported more gastrointestinal and general somatic symptoms with statistically significant difference. On the contrary, Brown et al[12] reported that there was no significant difference for general and GIT somatic symptoms.

In our study, we did not find significant difference in the genital symptom item among various age group adults. Likewise, Tan et al[13] and Stage et al[14] also did not find any significant difference. However, Shrivastava et al[9] and Shahpesandy et al[10] found genital symptoms were significantly more common in young age adults than old age group.

In weight loss symptom, we found that mean score of weight loss severity was more in young age as compared to middle and old age group participants. Also, the difference was found to be significant ($p = 0.024$). However, Shrivastava et al[9] and Hegeman JM et al[11] did not find any significant difference. The reason for this difference could be because majority of young participants in the study were suffering from very severe depression in our study. Other symptom items from HAM-D 21 scale did not shown any significant difference among various age group adults.

To conclude, we found that there is modest difference in the phenomenology of major Depressive Disorder among various age group adults. Our study signifies that as the age increases, the reluctance to recognize their depressive cognition also increases which in turn may decrease their help-seeking behaviour. It is important to identify varied phenomenology of depression among various age group adults as it helps in the early diagnosis and appropriate management. This will positively impact the prognosis and quality of life of individuals suffering from MDD.

Limitations

This study was a single hospital based and somatic symptoms taken into consideration could be due to physical disorders seen in middle and old age adults. Also, very young adults diagnosed with MDD might convert into Bipolar Disorder in future.

Future Directions

In future, large multi-hospital based study can be planned and increasing the number of participants to generalize the results. Subjective and objective both scales can be used to further increase the understanding of phenomenology of depression in various age group adults.

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Original Article

A Study of Socio-Demographic Profile and Associated Psychiatric Co-Morbidities in Male Patients with Erectile Dysfunction

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ABSTRACT

Background : *Erectile Dysfunction (ED) is currently one of the most common sexual dysfunctions in men worldwide. ED is the chief complaint of more than 50% of all men treated for sexual disorders. On the basis of available literature, its ranges from 2 % to 81.8. Erectile Dysfuntion (ED) has been a common cause for treatment seeking in male subjects to medical, surgical, urology , dermatology, endocrinology, psychiatric and sexual clinics primarily after consultation & treatment from faith healers / quacks & ayurvedic / homeopathic / naturopathic Doctors.* ***Aims and Objectives:*** *To determine the socio-demographic profile and associated psychiatric co-morbidities in male patients with Erectile dysfunction.* ***Material and Method*** *: In this hospital-based cross-sectional observational study, 54 adult (>18 years) male patients with erectile dysfunction, fulfilling the inclusion criteria were enrolled after obtaining informed consent. Diagnosis of Erectile dysfunction was made as per ICD-10 diagnostic criteria. General Health Question (GHQ-12) was applied and common psychiatric co-morbidities were depression, anxiety, adjustment disorder, insomnia and obsessive compulsive disorder.* ***Results & Discussion:*** *In our study Majority of patients belonged to age group of 18 to 25 years (31.48%), were Hindus (61.11%), hailing from rural area (72.22%), were married (64.81%), were Illiterate (61.11%), 70.37% were from joint family, 50% were from lower socioeconomic status and 64.81% were Unemployed . Out of the 54 patients, (n=34, 62.96%) had psychiatric co-morbidity. Twenty four (44.44%) patients had depression, 04 (07.40%) patients had anxiety, 02 (03.70%) patients had ocd ,01 (01.85%) patients had Adjustment disorder and Insomnia. While assessing severity of depression by Hamilton Depression rating scale, among 24 patients having depression, 12.5% had mild depression, 79.16% had moderate depression and 08.33% patient was suffering from severe depression. Similarly while assessing severity of anxiety by Hamilton anxiety rating scale, among 04 patients of anxiety, 25% patients had mild anxiety, 50% patients had moderate anxiety and 25% patients were suffering from severe anxiety disorder. In our study 62.96% participants were having consulted quacks and faith Healers for ED treatment followed by ayurvedic and Homeopathic doctors, General practitioners, medical and surgical specialist and lastly from the Psychiatrist.*

Keywords *: Erectile dysfunction , Psychiatric Co-Morbidity.*

Introduction

Erectile dysfunction (ED) is currently one of the most common sexual dysfunctions in men worldwide. ED is the chief complaint of more than 50% of all men treated for sexual disorder.[1]

Erectile dysfunction (ED) has been defined as "the persistent or recurrent inability to attain or maintain an erection sufficient for satisfactory sexual function.'' A meta-analysis on the prevalence of ED in Asian populations, which included 6 studies

comprising 8,653 individuals for analysis, found it to be ranging from 2% to 81.8%.[1] Its incidence increases drastically from about 6% in the age group 20-29 years, to 50-70% in the age group 40-79 years.[2] The studies have reported the prevalence of ED increases with the increase of age.[3]

According to ICD-10, defines ED "Difficulty in developing or maintaining an erection suitable for satisfactory intercourse. If erection occurs in certain situations, e.g. during masturbation or sleep or with a different partner, the causation is likely to be psychogenic.[4]

According to DSM-5 criteria of ED "At least one of the three following symptoms must be experienced on almost all or all (approximately 75%–100%) occasions of sexual activity (in identified situational contexts or, if generalized, in all contexts): 1. Marked difficulty in obtaining an erection during sexual activity. 2. Marked difficulty in maintaining an erection until the completion of sexual activity. 3. Marked decrease in erectile rigidity. The symptoms have persisted for a minimum duration of approximately 6 months and cause clinically significant distress in the individual."[5]

With the finding of this study it would help further in improving our understanding in defining needs and priorities to provide the framework for future research endeavour.

Material and Methods

Study Design

Present study is a descriptive, cross-sectional, tertiary care hospital based study done using convenient sampling method and was duly approved by the institutional research ethics committee.

A total of 54 participants who were suffering from erectile dysfunction were enrolled after obtaining written informed consent from each participant. Participants with Dhat syndrome, other Psychosexual Disorders, Psychotic Disorders, Intellectual disability and organic brain syndrome or with coexisting any significant Medical, Urological and Surgical co-morbidity or history of Medicine taken for any Major illness were excluded from the study.

Data was collected using self-designed performa covering socio-demographic details, illness characteristic. All the participants under the study were assessed using General Health Questionnaire-12 (Gautam et al, 1987).[6] The General Health Questionnaire (GHQ) is a self-administered screening questionnaire, developed by Goldberg in 1970, one of the first mental screening devices for medical and surgical settings aimed at detecting individuals with a diagnosable psychiatric disorder. All the subject who scored high on GHQ (cut-off score >2) were interviewed in details and a psychiatric diagnosis were made according to ICD-10 diagnostic criteria. (WHO, 1992).[4] Patients scoring higher on GHQ-12 (cut-off score > 2) were further assessed for severity of depression and anxiety using Hamilton Depression Rating scale (HAM-D, 1967)[7] and Hamilton Anxiety Rating Scale (HAM-A, 1959).[8]

Results

A total of 54 consecutive erectile dysfunction patients were enrolled in the study. Majority of patients were illiterate (n=33, 61.11%) and unemployed (n=35,64.81 %). Most of them belonged to joint family (n=38,70.37%), were of

Table-1: Sociodemographic profile of patients with erectile dysfunction (ED)

Variables	(n=54)	n%
Age		
18-25	17	31.48%
26-35	13	24.00%
36-45	09	16.66%
46-55	08	14.81%
Above 55	07	12.96 %
Religion		
Hindu	33	61.11 %
Muslim	21	38.88 %
Marital Status		
Single/Divorced/Widowed	19	35.18%
Married	35	64.81%
Family Background		
Urban	15	27.77%
Rural	39	72.22%
Education		
Illiterate	33	61.11%
Primary & Secondary	12	22.22%
Graduate & Post Graduate	09	16.66%
Occupation		
Unemployed	35	64.81%
Labourer / Farmer	11	20.37%
Job/Business	08	14.81%
Socioeconomic class		
Lower	27	50.00%
Middle (Upper / Lower)	15	27.77%
Upper	12	22.22%
Family Type		
Nuclear	16	29.62%
Joint	38	70.37%

lower socio-economic status (n=27, 50%) and 39 (72.22%) of them were of rural background.

Table-2: Based on GHQ 12 (Cut-Off Score ≥ 2)

Psychiatric Morbidity Present	Number of patients (n=54, 100%)
Yes	32 (59.25%)
No	22 (40.74%)
Total	54 (100 %)

Psychiatric co-morbidity was present in 34 (62.96 %) participant as can be seen from Table 2.

Table-3: Distribution of subjects based on their diagnosis

Psychiatry Diagnosis (ICD-10 Criteria)	Number of ED Patients (n=54)	Percentage (%)
None	22	40.74
Depression	24	44.44
Anxiety	04	07.40
OCD	02	03.70
Adjustment disorder	01	01.85
Insomnia	01	01.85
Total	54	100.00%

These patients with psychiatric co-morbidity were interviewed further by psychiatrist and diagnosis was made as per ICD-10 Diagnostic criteria.Twenty four (44.44%) patients had depression, 04 (07.40%) patients had anxiety, 02 (03.70%) patients had OCD, 01 (01.85%) patients had Adjustment disorder and Insomnia.

Table-4: Severity of depression in patients of erectile dysfunction

Severity of depression (HAM-D Scale)	Erectile dysfunction patients, n= 24, (%)
Mild	03 (12.5%)
Moderate	19 (79.16 %)
Severe	02 (08.33%)

While assessing severity of depression by Hamilton Depression rating scale, among 24 patients having depression, 12.5 % had mild depression, 79.16% had moderate depression and 08.33% patient was suffering from severe depression.

Similarly while assessing severity of anxiety by Hamilton anxiety rating scale, among 04 patients of anxiety, 25 % patients had mild anxiety, 50% patients had moderate anxiety and 25% patients were suffering from severe anxiety disorder.

Table-5: Severity of anxiety in patients of erectile dysfunction

Severity of Anxiety (HAM-A Scale)	Erectile dysfunction patients, n = 04, (%)
Mild	01(25.0%)
Moderate	02(50.0%)
Severe	01(25.0%)

Consultation /Treatment root for ED, majority 62.96% patients were consulted quacks and faith healers followed by 18.51% Ayurvedic/Homeopathic Doctors, 11.11% Allopathic Doctors / medical & surgical specialist and 07.40% were having first psychiatric consultation.

Table-6 : Consultation / Treatment root fot Erectile Dysfunction

Consultation/Treatment root for ED	Number of patients (n=54)	Percent (%)
Quacks/faith Healers	34	62.96
Ayurvedic/Homeopathic Doctors	10	18.51
Allopathic Doctors / medical & surgical	06	11.11
First Psychiatric consultation	04	07.40

Discussion

In our study majority of subjects were in the age group of 18-25 years, married, in joint family, illiterate, unemployed of rural background and belong to lower socio-economic status. Our findings were in resonance with the findings of Tripathi et al[1] and Rao et al[9] in terms of education, family type and socioeconomic status. However our findings were in contrast with the findings of study done by Verma et al[10] in which 42 % were educated and 52% were belonged to middle socioeconomic status and The reason for the above finding could be because majority of patients were from urban area in this study.

Prevalence of psychiatric morbidity in our study was 59.25% which was in contrast with the findings of Tripathi et al[1] who reported 40.2% of psychiatric morbidity in their study but one major limitation of this study was the small sample size in comparison to our study.

In this study, depression was the most common psychiatric disorder observed in 44.44% of patients and our finding was in concordance with the finding of the study by Verma et al[10] who also reported

depression as the most common psychiatric disorder in their study. In terms of severity of depression, 12.5% had mild depression, 79.16 % had moderate depression and 08.33% patient was suffering from severe depression.

Interestingly, a very low prevalence of anxiety disorder (07.40%) was observed in our study and our findings were in contrast to the findings of study by Kendurkar et al[11] in which anxiety disorder reported were 41.2%. The possible reason behind this could be due to difference in sample size and methodology. In this study 25% patients had mild anxiety, 50 % patients had moderate anxiety and 25% patients were suffering from severe anxiety disorder.

In our study 62.96% participants were consulted quacks and faith Healers for ED treatment followed by Ayurvedic/Homeopathic Doctors, Allopathic Doctors/medical & surgical specialist and Psychiatrists, where in the study by Kalra et al[12] in which 31% had consulted Ayurveda practitioners.

Limitations

This study has certain limitations. It was a cross-sectional hospital based OPD study with a small sample size. The study excluded patients with any significant medical and surgical co-morbi-dity, patients with Psychotic disorders, Intellectual disability and Organic brain syndrome.

Conclusion

Comparatively high prevalence of depression and anxiety was observed in patients suffering from Erectile dysfunction in this study.

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Original Article

Long term Morbidity and Mortality in Schizophrenia: A Retrospective Cohort Study

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ABSTRACT

***Background**: Schizophrenia is a severe and persistent mental illness, associated with higher rates of physical morbidity and mortality as compared to the general population. With alarming increase in the rates of non-communicable diseases, it is of paramount importance to understand the factors associated with medical comorbidity in patients with schizophrenia. **Aims and Objectives:** To assess the long term outcome in terms of morbidity and mortality in patients with schizophrenia and its association with socio-demographic and clinical variables. **Materials and Methods**: It was a retrospective cohort study. Case record files of patients with ICD-10 Diagnosis of schizophrenia registered at department of psychiatry of tertiary care teaching hospital of North India between January 2009 and December 2010 were retrieved and analyzed in the months of August-September,2021. Same information were collected telephonically from patients, who were not coming for regular follow-ups. **Results**: A total of 100 patients (51 females; 49 males) files were screened. Mean age was 33.49 ± 12.05 years. In terms of outcome of psychiatric illness over the course of 10 years, 20% participants were grouped as recovering, 58% had deteriorated, and 22% were static from baseline assessment. All 100 participants were being treated with antipsychotics. Co-morbid medical illness was present at baseline in 12% participants, whereas, 22% participants developed new medical issues including epilepsy (1%), hypothyroidism (2%), lifestyle disorders (15%), glaucoma (1%), psoriasis (1%) and carcinoma (1%). Development of these disorders was significantly correlated with the presence of family history of medical illness. It was not found to be statistically linked to usage of antipsychotic medication. **Conclusion**: A total of 22% of patients with schizophrenia developed new medical illness over a period of 10 years.*

***Keywords:** Schizophrenia, outcome, morbidity, mortality, antipsychotics*

Introduction

Schizophrenia is a potentially disabling mental disorder with a prevalence of around 1%.[1] It contributes significantly to the global disease burden, accounting for 13.4 million years of life lived with disability.[2] Excess mortality in severe mental illness was acknowledged long ago,[3] though it began to be considered as a measure of clinical outcome only recently.[4] Brown's meta-analysis found that mortality from both natural and unnatural causes was significantly increased in schizophrenia.[5]

Saha et al, in their meta-analysis of 37 articles, calculated median Standardized Mortality Ratio (SMR) for all-cause mortality to be 2.58. This implies that persons with schizophrenia were 2.58 times more likely to die than the general population.[6] A 25-year follow up of a community cohort in the UK found a mortality risk two to three times that of general population.[7] A study carried out in a rural South Indian community found two-fold excess mortality among persons with schizophrenia.[8] One would expect mortality rates to decrease with time owing to better healthcare and greater awareness. However, some studies have found increasing mortality trends among persons with schizo-phrenia.[5,9]

This naturally begs enquiry as to what persons

with schizophrenia are dying of exactly. Of the excess mortality reported by Brown among persons with schizophrenia; 28% was due to suicide, 12% due to accidents, and 60% due to natural causes.[5] A recent study has found that schizophrenic patients have higher risk of developing hepatitis, cardiovascular diseases, obesity, hypertension and sexual dysfunction.[10] Lambert et al reported that nearly 80% persons with schizophrenia have some kind of physical illness requiring treatment.[11] A study in rural South India using verbal autopsy found the average age at death to be 50.45 $\pm$ 13.65 years. Most common cause of death was non-communicable disease (56.6%), followed by communicable diseases (13.2%) and unnatural causes (15% for suicide and 5.6% for road accidents).[12]

Despite antipsychotic drugs being implicated in causing metabolic side effects, antipsychotic use is actually found to decrease mortality in persons with schizophrenia. A 20-years follow up Finnish study of more than 62000 patients with schizophrenia found that the cumulative mortality rates were 46.2% for no antipsychotic use, 25.7% for any antipsychotic use, and 15.6% for clozapine use. These data suggest that long-term antipsychotic use does not increase severe physical morbidity and is associated with substantially decreased mortality, especially among patients treated with clozapine.[13]

The association between severe mental illness and cardiovascular morbidity is well established.[14] Various factors such as metabolic syndrome, tobacco and substance use, physical inactivity, poor diet and antipsychotic medication have been identified as contributing to cardiovascular morbidity and mortality.[15] A recent analysis of Indian studies on cardiovascular diseases and schizophrenia in India reported that cardiovascular diseases predominated among patients with schizophrenia, and the key factors playing a role in this were metabolic syndrome and obesity.[16]

This is an area that requires diligent research, and also awareness among practitioners. Most studies available are based on foreign data; and the lack of Indian literature is quite glaring. India is fast becoming the capital of non-communicable illnesses, and the large population suffering from schizophrenia and related disorders is at additional risk of these disorders. Various genetic and environmental factors may be involved in this. Indigenous data is the need of the hour. Hence, this study was planned to help understand long-term outcome in schizophrenia by providing prevalence in a hospital-based setting and further its association with socio-demographic and clinical variables.

Materials and Methods

Study design and setting

This was a retrospective cohort study carried out at tertiary-care teaching hospital of North India.

A study sample of 100 patients was drawn from patients registered with the outpatient clinical services of Department of Psychiatry between January 2009 and December 2010 and diagnosed with schizophrenia according to the International Classification of Diseases, 10th Edition (ICD-10) diagnostic criteria.

Procedure

Approval for the study was first taken from the Institutional Ethics Committee. Case record files of patients registered with diagnosis of Schizophrenia (ICD-10) between January 2009 and December 2010 (2 years period) with age more than 18 years of either gender, were retrieved and analysed for socio-demographic and clinical variables. The case record files in the OPD are maintained by the file restorer in a meticulous way. The baseline socio-demographic and clinical information contains age, sex, occupation, income, family type and clinical information as total duration of illness, family history of psychiatric illness/ medical illness and co-morbid medical illness. The information regarding current clinical status of the patients were retrieved from the clinical notes of the patients coming for regular follow ups. A standard follow-up note by the psychiatrist contains the name of medicine and dose, compliance to treatment, current status including improvement and liaison with other departments for associated medical morbidity, if any. A standard follow-up note by treating consultant is written as 'compliant to treatment' if patient is taking medicine regularly for at least previous 2 weeks, 'recovering' or 'improving' if there is (>50% reduction from baseline severity) in symptomatology; 'static' if there is no further improvement since previous visit and 'deteriorating' or 'worsening' if the clinical status has worsened since previous follow up visit. For the purpose of the study, "Recovering" status was

considered if the patient showed >50% improvement from baseline in the areas of activities of daily living, requirement of assistance from care-giver and overall well-being. In case there was <50% improvement in these domains, patient was kept under "static" category. Patients who showed worse outcome than baseline, were considered under "deteriorating" outcome. This information was taken from the last follow up visit in the hospital.

For patients who dropped out of the follow up, the same information was gathered through telephonic interview after obtaining the telephonic consent for the same. Incomplete records, including contact numbers and refusal to provide information over telephone were excluded from the study. The data was collected between August 2021 and September 2021.

Statistical analysis

The data was coded and analyzed using SPSS software version 22.0. Mean, Standard Deviation (SD) for ordinal variables and frequency tabulation for nominal variables were done. Level of significance (p value) was kept at 0.05. Frequency tabulation for nominal variables, while mean and SD for ordinal variable was computed. Comparative statistics were applied across the two groups in the form of chi-square test for nominal variables.

Results

Baseline sociodemographic and clinical variables

The sample comprised of 100 study participants, which comprised of 49 males (49%) and 51 females (51%). Mean age of the sample was 33.49 ± 12.05 years. 8 participants (8%) belonged to low income category (up to INR 3500 per month/ USD 44.99), 50 (50%) had family income between INR 3501 and 7500 per month (USD 45.00-96.38), 28 (28%) belonged to INR 7501-10000 (USD 96.39-128.51) category, and 14 participants (14%) were in the > INR 10000 (USD >128.51) per month category. 17 participants (17%) were unemployed at baseline, 13 (13%) were students, 23 (23%) were employed and 47 (47%) were homemakers. 36 participants (36%) were single, 63 (63%) were married and 1 (1%) was separated. 54 participants (54%) belonged to joint families, 45 (45%) to nuclear families, and details for 1 could not be obtained.

These parameters were not found to have any statistically significant correlation with sociodemographic variables of gender, locality, and marital status (Table 1). However, statistically significant correlation was found between recovering and homemaker categories ($p = 0.01$). Also, patients with deteriorating status were more likely to be from lower income households. ($p = 0.01$)

A positive family history for mental illness was present in 28 (28%) participants and for medical illness in 24 (24%) participants. Co-morbid medical illness was present at baseline in 12 (12%) participants. Nine of these had diabetes mellitus/ hypertension/coronary artery disease (CAD), 2 suffered from epilepsy and 1 had carcinoma.

Clinical status of patients after 10 years

All 100 participants were being treated with antipsychotics. Out of these, 84 participants (84%) were being given antipsychotic drugs alone, while 16 (16%) were receiving ECT additionally. In terms of specific antipsychotic being given; 75 (75%) were on risperidone, 11 (11%) were on olanzapine, 5 (5%) on haloperidol and 4 (4%) on clozapine, 2 (2%) were on more than one antipsychotic drug, while the drug being administered could not be ascertained in 3 (3%) participants. Out of 100 participants, 58 (58%) continued psychiatric treatment, while 42 (42%) discontinued it. Twenty-two (22%) participants developed new medical issues - 1 (1%) developed epilepsy, 2 (2%) had hypothyroidism, 15 (15%) had lifestyle disorders (including diabetes mellitus, hypertension and CAD), 1 (1%) developed glaucoma, 1 (1%) had psoriasis and 1 (1%) developed carcinoma.

No statistically significant correlation was found between compliance to psychiatric treatment and development of new medical illness. Statistically significant correlation was present between development of CVD and positive family history of medical illness ($p=0.01$) as shown in table 4.

One participant (1%) died due to CAD at 38 years of age.

Over the course of 10 years; 20 (20%) were recovering or had recovered, 58 (58%) had deteriorated, and 22 (22%) were static in terms of status of mental illness. Comparison was done between the psychiatric status and socio-demographics to ascertain any statistical relationship.

Table-1: Relationship between psychiatric status and Socio-demographics

		Deteriorating	Recovering	Static	CHI Square	P Value
Gender	Male	8	30	11	0.82	0.66
	Female	12	28	11		
Locality	Rural	7	15	3	2.60	0.27
	Urban	13	43	19		
Employment Status	Employed	4	15	2	18.83	0.01*
	Household	13	20	14		
	Student	3	10	0		
	Unemployed	0	13	6		
Marital status	Married	9	20	7	1.62	0.80
	Unmarried	11	37	15		
	Divorced/separated	0	1	0		
Family Income	Rs 0-3500	5	2	1	32.01	0.01*
	Rs 3501-7500	34	11	5		
	Rs 7501-10000	12	4	12		
	Rs 10001& above	2	5	7		

*Significant

These parameters were not found to have any statistically significant correlation with sociodemographic variables of gender, locality, and marital status (Table 1). However, statistically significant correlation was found between recovering and homemaker categories (p = 0.01). Also, patients with deteriorating status were more likely to be from lower income households. (p = 0.01)

Out of the 42 patients who became non-compliant, 9 had developed a new medical illness. There was no statistically significant relationship between the compliance and development of medical illness as shown in Table 3. (Chi square – 0.43)

Cardiac disease showed statistically significant relationship with family history of medical illness. Carcinoma did not show any significant relationship with any variable as shown in Table 4.

Table-2: Relationship between Compliance and psychiatric status

		Psychiatric Status			CHI Square	P Value
		Deterio-rating	Recover-ing	Static		
Compliance (psychiatry treatment)	Yes	8	43	7	15.05	0.001*
	No	12	15	15		
Compliance (medical treatment)	Yes	13	24	14	5.12	0.07
	No	7	34	8		
Side-effects		12	7	5	6.22	1.73

*Significant

A total of 15 patients, who reported side-effects, were non-compliant as well.

Being compliant to psychotropics is statistically significantly associated with recovery as an outcome as shown in Table 2.

Psychiatric clinical status was not found to be statistically correlated with family history of medical/mental illness or with the development of a new medical illness. But patients who had been compliant to psychiatric medication were statistically more likely to have a recovering clinical course as shown in Table 2. (p = 0.001)

Discussion

This study aimed to assess the long term outcome in terms of morbidity and mortality in patients with schizophrenia and its association with socio-demographic and clinical variables. It was a retrospective cohort study which assessed 100 participants with an ICD-10 diagnosis of schizophrenia after a gap of 10 years after initial registration with outpatient clinical services between January 2009 and December 2010. Sociodemographic and clinical information was gathered from

Table-3: Relationship between new medical morbidity and current status of patient

Medical illness	Psychiatric Status			CHI Square	P Value
	Deteriorating	Recovering	Static		
Inflammatory Bowel Disease	0	1(RSN)	0	7.04	0.424
Hypothyroidism	0	2(RSN)	0		
Lifestyle Diseases	5 (RSN-4; CLZ 1)	6 (RSN 3; OLN 2; CLZ 1)	4 (RSN-1; OLN 3)		
Glaucoma	0	1 (OLN)	0		
Psoriasis	1(RSN)	0	0		
Seizure Disorder	0	1 (RSN)	0		
Carcinoma	1(RSN)	0	0		

RSN- Risperidone, OLN- Olanzapine, CLZ-Clozapine
Lifestyle diseases include: Diabetes mellitus, Hypertension and Coronary Artery Disease.

Table 4 : Relationship of medical morbidity at any time during the study and all study variables

		Medical illness present at anytime	Medical illness absent throughout	CHI Square	P Value
Family history of Mental Illness	Present	13	15	2.67	0.10
	Absent	21	51		
Family history of Medical illness	Present	15	9	11.43	0.01*
	Absent	19	57		
Family type	Joint	13	34	6.8	0.1
	Nuclear	7	23		
	N/A	0	1		
Gender	Male	13	30	0.82	0.66
	Female	14	28		
Locality	Rural	7	18	0.53	0.46
	Urban	27	48		
Employment Status	Employed	9	14	3.38	0.49
	Household	14	33		
	Student	7	6		
	Unemployed	12	7		
Marital status	Married	9	27	1.62	0.80
	Unmarried	25	38		
	Divorced/separated	1	0		
Family Income	Rs 0-3500	3	5	7.11	0.52
	Rs 3501-7500	12	38		
	Rs 7501-10000	12	16		
	Rs 10001& above	5	9		
Psychiatric status	Deteriorating	9	11	1.35	0.50
	Recovering	18	40		
	Static	7	15		
Medical compliance	Compliant	18	31	0.32	0.57
	Non compliant	16	35		
Psychiatric compliance	Compliant	19	39	0.09	0.75
	Non compliant	15	27		

the case records and through telephonic interview.

Participants were distributed almost equally across genders. Mean age at the time of reporting to the clinic was 33.49 ± 12.05 years. Most participants belonged to low and middle income categories, and 63% were married. Nearly half of the participants were homemakers, which is explained by 51% females in the study sample. Of the remaining participants, 13% were students and 23% were in regular employment. Most of these data are in conjunction with the available Indian literature on socio-demographic parameters of persons seeking care for schizophrenia. However, more females were among the care-seeking participants than seen

usually. This could possibly be due to better social status of women in the catchment area of the hospital than in other areas of the country.[17]

Baseline medical co-morbidity was present in 12% participants, and 22% developed new medical co-morbidities over the course of 10 years. Commonest ones included hypertension, diabetes and coronary artery disease (CAD). This is in conjunction with available literature. Cardiovascular disorders (CVDs) and cancer have been identified as leading causes of this excess mortality due to natural causes among patients with schizophrenia. Various cohort studies have been carried out around the world, with findings indicating increased SMR for patients with schizophrenia and CVDs being the main cause of death.[9,18,19]

The high incidence of CVDs among persons with schizophrenia seen in this study is also echoed in other Indian studies.[12,16]

One patient suffered from malignancy at baseline, and another one developed it later. But it was found to have no statistical significance with any specific study parameter. It is well known that morbidity and mortality owing to major cancers is also higher than usual incidence in patients with schizophrenia. However, aetiologies may be quite complex for cancers and hence it does not make for a good study parameter.[20]

In terms of antipsychotic drug use; 75% participants were on risperidone, 11% were on olanzapine, 5% on haloperidol and 4% were on clozapine. This resonates with the antipsychotic prescription patterns seen in Indian literature; where risperidone, olanzapine and haloperidol have been the most commonly prescribed antipsychotic drugs.[21] Only 2% participants were on more than one antipsychotic. This figure is much lower than seen in other studies.[22,23] This possibly reflects our institute's policy of avoiding poly-pharmacy as much as possible.

As expected, compliance to psychiatric medication was associated with a recovering clinical course. Interestingly, compliance to antipsychotic medication was not found to be associated with development of new medical illness. This is in keeping with findings of other studies.[13]

A 10 year, schizophrenia outcome study based in Ethiopia, concluded that the long-term physical and social functioning of persons with schizophrenia were significantly lower than the population norm.[24] The Gold standard International Pilot Study of Schizophrenia (IPSS) studied a total of 1,202 patients in nine countries: three developing countries and six developed ones. At the five-year follow-up, India had the most success, with 42% of cases reporting 'best' outcomes, followed by Nigeria with 33% of cases. In contrast, the developed countries had poor showings: only 17% cases in the United States showed 'best' outcomes and less than 10% in the other developed nations. The determinants of outcome with severe mental disorders (DOSMeD) study found that developing countries had higher rates of complete recovery: an average of 37% compared with 15.5% in developed countries. These study concluded that socio-cultural conditions can modify the long-term disease course, and that early intervention programmes with social and pharmacological treatments could have longer-term benefits. In 2009, a study reviewed 58 schizophrenia studies to compare outcomes from developed and developing nations. It was seen that, with a few exceptions developing countries have a larger proportion of patients (50–60%) with good outcomes than developed countries in follow-up examinations after two and five years.[25] The Madras based Study of Factors Associated with the Course and Outcome of Schizophrenia (SOFACOS) study findings were determined at the end of 25 years. Forty-seven of the original ninety subjects could be assessed completely in which the outcome was good in 27.7%, intermediate in 52% and poor in 19%.[26] Our study participants showed that 20% recovered, 58% deteriorated and 22% remained more or less the same as baseline. These findings of the index study are not in consonance with the previously conducted studies, this could be explained by the modernization of present-day India and methodological differences. These long-term prospective studies, however did not evaluate the extent and impact of medical co-morbidity and mortality.

The index study provided us with invaluable information in context of morbidity and mortality in patients with psychiatric illness. Various socio-demographic and clinical parameters were assessed and correlation with morbidity and mortality was tested. Information was gathered from case records as well as telephonic interview, and covered multiple avenues.

The study throws light on clinical status of

patients with schizophrenia over a period of 10 years. Baseline socio-demographic and clinical details were noted down on predesigned semi-structured performa. However, there were a few limitations. SMR could not be calculated as the study population was not a homogenous group. Factors contributing to morbidity and mortality; such as diet and lifestyle, substance use, obesity etc were not studied. Certain parameters such as employment status, family income, family type, family history of medical/ mental illness etc. may have changed over the course of 10 years. These were not taken into account. A small sample size limited the assessment of various domains.

Conclusion

Schizophrenia constitutes a major public health concern, and is associated with significant morbidity and mortality. The present study echoed these facts. One-fifth of patients showed significant improvement at 10 years follow up. Commonest medical co-morbidities were hypertension, diabetes and CAD. The development of these disorders was significantly correlated with the presence of family history of medical illness. It was not found to be linked to usage of antipsychotic medication. Those who remained compliant to antipsychotic medication had a better clinical course than others. Participants with recovering course were more likely to be homemakers, and those with deteriorating course were more likely to be from lower income households. One participant died due to CAD.

Future directions

Medical morbidity and mortality among persons with schizophrenia and major mental illnesses is an important, yet often ignored issue. Schizophrenia is associated with high levels of morbidity and mortality. It would be pertinent to carry out a basic clinical history taking, physical examination and investigations at baseline when diagnosing a person with mental illness; with follow-ups every few months in order to catch such disorders early and treat them appropriately. Patients and their family members must be sensitised towards these issues so that they may play an active role in prevention as well as intervention. Institutions should strive to maintain databases of these patients with timely updation. A robust national database or registry would greatly aid in getting a grip of the problem.

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Original Article

Determinants of Psychological Morbidity among the Cancer patients and Chronic kidney disease patients: A comparative study

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ABSTRACT

Back ground: *People with cancer are having Depression, Anxiety, and Psychological distress etc. which influence their standard of living, mental wellness, social relationship, personal care and treatment adaptation.* ***Aim:*** *To identify and compare the determinants of Psychological morbidities among the Cancer patients and Chronic kidney disease patients.* ***Materials and Method:*** *A Cross-sectional study design was used for the people age between 18 to 70 year in selected area of Hospital setting. Sample size determination depend upon prior estimation (Previous study) of mean score of three parameters namely, Depression, Anxiety and psychological distress. Sample were recruited from different types of newly confirmed cancer patient and chronic kidney disease patient (CKD). Patient with gross psychological abnormality were excluded from study subject. GHQ-12 (General Health Questionnaire-12), HADS (Hospital Anxiety Depression Scale) were used for data collection.* ***Result:*** *Overall finding of the study reveals that the risk of anxiety was found (OR = 2.510:95% C.I.= 1.378, 4.570 P <0.05) times more in cancer patients as compared to CKD patients. In depression dependent variables, in disease group the risk of depression was found (OR = 0.328:95% C.I. = 0.194,0.555 P <0.001) 67% less in Cancer patients as compared to CKD patients. Similarly in dependent variable Psychological distress the risk of psychological distress was found (OR= 4.326:95% C.I. = 2.247,8.329 P <0.001) times more in Cancer patients group than CKD patients group.* ***Conclusion:*** *On the basis of our findings it was concluded that cancer patients experienced more psychological distress and anxiety in comparison to CKD Patients. However, the presence of depression is less in cancer as compare to CKD patients. Cancer absolutely breaks the patients psychologically as well as biologically. Considering these Cancer patients needs to be given more psychological as well as emotional support by the family members and other surrounding peoples. Psychological assessment should be a part of cancer management.*

Keywords: *Cancer, Anxiety, Depression, Chronic Kidney disease.*

Introduction

Cancer remains the most deadly enemy and killer of mankind. Thus cancer remains the single most factor for increase mortality and morbidity of human being as well as for entire nation, impacting its manpower and economy. International agency for research on Cancer (IARC), which recorded 18.1 million new cases of cancer and 9.6 million cancer related deaths world wide. The report further predicts an increase in new cancer to be 15.1 million and cancer related death to be 12 million by the year 2020.[1] The confirmation of cancer influence patients and their families financially as well as physically and economically. Cancer is closely resembling to death, pain and suffering.[2] The knowledge of life threatening confirmation of cancer arise psychological and emotional responses, its prognostic uncertainty and fears about death and dying. The

sensational responses are also due to physical symptoms- pain, nausea, lymph edema and other dressing symptoms of the disease and unwanted impact of medical, surgical and radiation treatment. The unfair beliefs due to cancer and its outcome adds to the negative reactions to the disease.[3]

The most common mental disorder observed in cancer patients is adjustment disorder with depression, anxiety, or both.[4] Fear of death, change in social role and life style and interruption in their life plans are some of the important issues encountered by the cancer patients.[5] Oncologists should play a crucial role in identify the above mental conditions and should refer to the psychiatrists for better patients care.[6] Untreated mental disorders with any other medical condition may worsen the individuals' quality of life.[7] Cancer disrupts all aspects of daily life including family, work, finances, and friendships. Cancer creates anxiety, anger, sadness and depression as patients struggle to define and resolve the series of decisions that confront them.[8] Cancer patients suffer from both bodily as well as psychosomatic symptoms. There are different types and variation of depressive disorders, but the common clinical symptoms are depressed mood, persistent body pain, loss of pleasure in work and life, easy fatigability and sleep as well as appetite disturbances.[9-13] A great amount of cancer patients suffer from social, sensational and mental distress due to the confirmation and treatment of cancer.[14-16]

Materials and Methods

A cross-sectional study was carried out among the people aged 18 to70 years. Sample was collected 320 from Sir Sunderlal Hospital B.H.U., Varanasi, India, out of which 160 were cancer and 160 were CKD. Prior written informed consent was taken by the participants. The specific inclusion and exclusion criteria are given below:

Inclusion criteria

- All newly registered with histologically proven cases of Carcinoma in OPD or admitted patients in the wards for CKD.
- Age between 18 years to 70 years for both groups.
- All those who were interested to participate and gave their written consent.

Exclusion criteria

- Patient with gross psychotic abnormality were excluded
- Severe ill patients who were unable to complete interview schedule were excluded
- Carcinoma patients with other chronic disease were excluded

Sample size was determined based on prior estimation (previous study) of mean score of these three parameters Depression, Anxiety, psychological distress. Sample size was calculated taking level of significance (α) as 5% and power as 90%. Sample size calculated was 38, 42, 142 based on the prior estimation of depression, anxiety, and psychological distress score respectively. Higher of the three that is 142 was considered as required sample size. Further assuming 10% non response the desired sample size will be 160. The final sample size in study was fixed as 160 for each group cancer and chronic kidney disease.

Interview schedule and pre-tested General Health Questionnaire (GHQ-12), Hospital Anxiety Depression Scale (HADS), were used to assess psychological distress, Anxiety, and Depression of participants in this study. General Health Questionnaire (GHQ-12) were used to collect information regarding psychological distress and Hospital Anxiety Depression scale (HADS) were used to collect information regarding Anxiety and Depression. Interview schedule was administered to obtain data on sociodemographic parameters. Ethical approval was obtained from the Institute Ethical Committee of the IMS, B.H.U.,Varanasi.

Data Processing. The information obtained from the Interview schedule using SPSS 16.0 program. Descriptive statistics (mean and standard deviation) were calculated for continuous variables and frequencies and percentages were calculated to summarize qualitative data. Other statistical tests like chi-square test, t-test were applied. Logistic regression was applied to identified level of Anxiety, Depression and psychological distress among cancer patients and chronic kidney disease patients. A significance level of 0.05 was used.

Logistic Regression Analysis

- Multiple binary logistic regression analysis was done taking Psychologically distress, Depression, Anxiety, as dichotomous dependent variables separately and Seven important independent variables namely type of disease, type of family, Occupation, Education, Substance abuse, Psychological distress, Depression.

Table-1: Socio-demographic variables of the study subjects (n=320)

Socio-demographic variables		Cancer n=(160)	%	CKD n=(160)	%
Gender	Male	104	65.0	109	68.1
	Female	56	35.0	51	31.9
Religion	Hindu	146	91.2	152	95.0
	Muslim	14	8.8	8	5.0
Marital status	Married	153	95.6	145	90.6
	Unmarried	7	4.4	15	9.4
Residence	Rural	119	74.4	117	73.1
	Urban	41	25.6	43	26.9
Types of family	Nuclear	110	68.8	77	48.1
	Joint	50	31.2	83	51.9
Living status of patients	**A**lone	4	2.5	1	0.6
	With partner	3	1.9	0	0
	With family	153	95.6	159	99.4
Dietary habits	Vegetarian	47	29.4	43	26.9
	Non vegetarian	113	70.6	117	73.1
Occupation	House wife	48	30	47	29.3
	Farmer	37	23.1	30	18.8
	Labour	27	16.9	13	8.1
	Service	25	15.6	48	30.0
	Business	23	14.4	22	13.8
Education	Illiterate	45	28.1	19	11.8
	Primary	62	38.8	59	36.9
	Above Primary & upto inter	40	25.0	54	33.8
	Graduate& above	13	8.1	28	17.5

Table-2: Shows that the logistic regression analysis was applied for taking Anxiety as dependent and seven independent variables namely group of disease, types of family, occupation, education, substance abuse, psychological distress, depression. However, out of seven independent variables three variables were found statistically significant. In group of disease Anxiety was found to be (OR = 2.510) times more in cancer as compared to CKD patients. Anxiety was found (OR = 3.272) times more in House wife occupation than business. Similarly the risk of anxiety was found (OR = 2.055) times more where substance abuse is present than absent. The risk of anxiety was found (OR = 10.722) times more in abnormal depression as compared to normal depression.

Table-3: reveals that the logistic regression analysis was applied for taking depression as dependent and seven independent variables. Out of seven independent variables only three variables were found statistically significant. In disease group the risk of depression was found (OR = 0.328;) 67% less in cancer patients as compared to CKD patients. However, the risk of depression was found (OR = 2.164) times more where psychological distress was present as compared to absent. Depression was found (OR = 9.825) times more in abnormal anxiety than normal.

Table-4: Reveals that the logistic regression analysis was applied for taking psychological distress as dependent and seven independent variables. Out of seven independent variables only two variables were found statistically significant. The risk of psychological distress was found (OR = 4.326) times more in cancer patients group as compared to CKD patients group. However, the risk of psychological distress was found (OR = 2.536) times more among those who found with depression than normal.

Discussion

A Cross-sectional study design was employed to conduct the Study. Cross- sectional studies collect simultaneously both the exposure status and outcome status at a single point in time. In order to realize the specific objectives of the study, a total three hundred twenty subjects (320) were interviewed using the modified and Pretested instruments which involved gathering self reported information on Socio-demographic, General Health Questionnaire-

Table-2: Logistic Regression of Anxiety on various independent Variables (n=320)

Independent variables	Dependent variable - Anxiety All 8 factors together				Dependent variable- Anxiety Forward LR method- Step- III			
	P-value	OR	95% C.I. of OR		P-value	OR	95% C.I. of OR	
			Lower	Upper			Lower	Upper
Group								
Cancer	0.033	2.056	1.059	3.991	0.003	2.510	1.378	4.570
CKD	—	Ref.	—	—	Ref.	—	—	—
Types of family								
Nuclear	0.409	1.302	0.696	2.438	—	—	—	—
Joint	—	Ref.	—	—	—	Ref-	—	—
Occupation								
House wife	0.043	3.272	1.040	10.297	—	—	—	—
Farmer	0.574	1.373	0.455	4.146	—	—	—	—
Labour	0.465	1.590	0.459	5.507	—	—	—	—
Service	0.398	1.626	0.527	5.017	—	—	—	—
Business	—	Ref.	—	—	—	Ref.	—	—
Education								
Illiterate	0.424	1.640	0.488	5.516	0.063	2.731	0.946	7.882
Primary	0.711	0.814	0.274	2.418	0.831	1.114	0.415	2.991
Above Primary & Upto inter	0.584	0.734	0.242	2.224	0.930	0.954	0.335	2.721
Graduate & above	—	Ref.	—	—	—	Ref.	—	—
Substance abuse								
Present	0.049	2.055	1.002	4.213	—	—	—	—
Absent	—	Ref.	—	—	—	Ref.	—	—
Psychological distress								
Present	0.465	1.423	0.552	3.670				
Absent	—	Ref.	—	—	—	Ref.	—	—
Depression								
Abnormal	0.000	10.936	4.715	25.365	0.000	10.722	4.770	24.098
Normal	—	Ref.	—	—	—	Ref.	—	—

R^2 = Nagelkerke R^2= 0.314 **Step-III :- R^2 = Nagelkerke R^2= 0.274**
Correct classification (by Model)= 81.9% **79.7%**

12 (GHQ-12), Hospital anxiety depression scale (HADS). In the present study a majority of the respondents were male, educated up to primary level, residing in a nuclear family, and belong to the Hindu religion. A majority of them were housewives and non vegetarian.

The present study revealed that the variables such as study group, occupation (housewife), and depression were found significantly associated with anxiety. Anxiety was found 2.510 times (OR = 2.510: 95% C.I. = 1.378,4.570 P < 0.003) high among cancer patient as compared to CKD patients. The respondents those who were housewives found 3.72 times more likely to suffer with anxiety. The risk of anxiety was found 10.72 times (OR = 10.722: 95% C.I. = 4.770, 24.098 P < 0.000) high among those who had depression. Similarly a previous study reported reported that the prevalence of at least one psychiatric disorder was 90% (n = 118). Sixty subjects (45.8%) had anxiety, 71 subjects (54%) had depression and 118 cases (90%) had psychiatric morbidity. Patients suffering for less than three months had anxiety; three to 12 months were both anxious and depressed; more than 12 months were depressed. Young women with less education were more anxious compared to educated women.[17] However the other study reported that Anxiety can also be a part of the normal stress response, adjustment disorder, delirium. Generalized anxiety disorder is not as frequent as depressive disorder in cancer patients. Anxiety symptoms can be reported as a part of depression in cancer patients.[20] The common anxiety symptoms noted in cancer patients are persistent tension and worrying, panic attacks, and palpitations. The worries are about future, family, finances,relapses and recurrences, and

Table-3: Logistic Regression of Depression on various independent Variables (n=320)

Independent variables	Dependent variable - Depression All 8 factors together				Dependent variable - Depression Forward LR method- Step- III			
	P-value	OR	95% C.I. of OR		P-value	OR	95% C.I. of OR	
			Lower	Upper			Lower	Upper
Group								
Cancer	0.000	0.286	0.159	0.512	0.000	0.328	0.194	0.555
CKD	—	Ref.	—	—	Ref-	—	—	—
Types of family								
Nuclear	0.359	1.279	0.756	2.164	—	—	—	—
Joint	—	Ref.	—	—	—	Ref-	—	—
Occupation								
House wife	0.340	0.640	0.256	1.599	—	—	—	—
Farmer	0.516	1.335	0.558	3.194	—	—	—	—
Labour	0.822	1.123	0.409	3.088	—	—	—	—
Service	0.446	0.719	0.309	1.677	—	—	—	—
Business	—	Ref.	—	—	—	Ref.	—	—
Education								
Illiterate	0.842	1.108	0.402	3.056	—	—	—	—
Primary	0.308	1.561	0.663	3.672	—	—	—	—
Above Primary & Upto inter	0.957	0.977	0.425	2.249	—	—	—	—
Graduate & above	—	Ref.	—	—	—	Ref.	—	—
Substance abuse								
Present	0.204	0.689	0.387	1.224	—	—	—	—
Absent	—	Ref.	—	—	—	Ref.	—	—
Psychological distress								
Present	0.023	2.109	1.106	4.022	0.015	2.164	1.161	4.034
Absent	—	Ref.	—	—	—	Ref.	—	—
Anxiety								
Abnormal	0.000	11.243	4.893	25.830	0.000	9.825	4.413	21.872
Normal	—	Ref.	—	—	—	Ref.	—	—
R^2 = Nagelkerke R^2= 0.271					**Step-III :- R^2 = Nagelkerke R^2= 0.240**			
Correct classification					**(by Model) = 70%**		**64.4%**	

survival.[2] Another study reported that the prevalence of depression and anxiety were significantly higher in adults with cancer compared with those without (Depression: (54.90% vs 17.50%, OR = 7.85, 95% CI = 5.56-11.07, p = 0.001); Anxiety: (49.69% vs 18.37%, OR = 6.46, 95% CI = 4.36-9.55, p = 0.001).[20] Contrary to a study conducted among Chinese cancer patients has established no association between disease stage and depression (p = 0.197).[18]

In the present study the variables such as study groups, psychological distress, and anxiety were found significantly associated with depression. The risk depression was found 0.328 times (OR = 0.328: 95% C.I. = 0.194, 0.555 P < 0.000) high among CKD patient as compared to Cancer patient. The respondents those had psychological distress were 2.164 time (OR = 2.164: 95% C.I. = 1.161, 4.034 P < 0.015) more likely to suffer from depression. The risk depression was found 9.825 times (OR = 9.825:95% C.I. = 4.413, 21.872 P < 0.000) high among the patient found with anxiety. Similarly a meta analysis study reported that the incidence (54.90% and 49.69%) of symptoms of depression and anxiety in Chinese cancer patients is obviously higher than that in the patients without cancer.[19] In comparison to the present findings a studies reported that the risk of depression was found high among the patient with cancer.[3]

The findings of the present study revealed that the variables such as study groups and depression were found significantly associated with psychological distress. The risk of psychological distress was found 4.326 times (OR = 4.326:95% C.I. = 2.247, 8.329 P < 0.000) high among cancer patients as compared to CKD patients. The respondents those

Table-4: Logistic Regression of Psychological distress on various independent Variables (n=320)

Independent variables	Dependent variable - Psychological distress All 7 factors together				Dependent variable - Psychological distress Forward LR method- Step- III			
	P-value	OR	95% C.I. of OR		P-value	OR	95% C.I. of OR	
			Lower	Upper			Lower	Upper
Group							2.247	8.329
Cancer	0.000	3.723	1.846	7.508	0.000	4.326		
CKD	—	Ref.	—		—	Ref-	—	—
Types of family								
Nuclear	0.793	1.084	0.593	1.980	—	—	—	—
Joint	—	Ref.	—	—	—	Ref-	—	—
Occupation								
House wife	0.431	0.644	0.215	1.926	—	—	—	—
Farmer	0.729	0.825	0.278	2.450	—	—	—	—
Labour	0.814	0.852	0.225	3.225	—	—	—	—
Service	0.544	0.730	0.264	2.017	—	—	—	—
Business	—	Ref.	—	—	—	Ref.	—	—
Education								
Illiterate	0.731	1.224	0.387	3.869	—	—	—	—
Primary	0.946	1.033	0.408	2.614	—	—	—	—
Above Primary & Upto inter	0.617	1.261	0.507	3.135	—	—	—	—
Graduate & above	—	Ref.	—	—	—	Ref.	—	—
Substance abuse								
Present	0.380	1.348	0.693	2.623	—	—	—	—
Absent	—	Ref.	—	—	—	Ref.	—	—
Depression								
Abnormal	0.016	2.222	1.161	4.252	0.002	2.536	1.395	4.609
Normal	—	Ref.	—	—	—	Ref.	—	—
Anxiety								
Abnormal	0.222	1.783	0.706	4.506				
Normal	—	Ref.	—	—	—	Ref.	—	—

R^2 = Nagelkerke R^2= 0.200 **Step-III :- R^2 = Nagelkerke R^2= 0.180**
Correct classification (by Model) = 80% **80%**

who had depression were found 2.536 times (OR = 2.536: 95% C.I. = 1.395, 4.609 P < 0.002) more likely to suffer from other psychological distress. A previous study reported that in Indian setting, 38% to 53% of cancer patients were found to have identifiable psychiatric disorder.[3]

Conclusion

It was concluded that psychological morbidity conditions like depression, anxiety and psychological distress are more prevalent in chronic medical conditions like cancer and chronic kidney disease. There was a significant difference found in the risk of psychological distress, depression, and anxiety between cancer patients and CKD patient. The risk of psychological distress was found 4.326 times higher among cancer patients. Where, the risk of anxiety was found 2.510 times higher among cancer patients as compared to CKD patients. The risk of depression was found more among CKD patients than cancer patients.

Limitations

- One of the major limitation of the study was

the Hospital based cross-sectional study design

- 18-70 years aged population was taken as a sample from selected OPD and wards of Sir Sunderlal Hospital B.H.U., Varanasi.
- Biochemical parameters could not be done to all the study due to logistic constraints

Conflicts of Interest

There were no conflicts of interest regarding the publication of this article.

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Original Article

A Study of Assessment of Anxiety and Depression in Spouses of Patients with Alcohol Dependence

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ABSTRACT

Background*: Alcoholism is one of the major public health problems being the world's third largest risk factor for disease and disability. Alcoholism causes harm to the well-being and health of not just the person but to the family as a whole. Spouses are mostly affected among the family members. This adversely affects the wives of alcoholics in their social and functional roles of being mother, sister and home maker impacting the family harmony.* ***Aims****: To assess anxiety and depression in spouses of patients with alcohol dependence.* ***Material & Method****: Hospital based cross sectional study at Psychiatry department / De-addiction Centre Medical College and Hospital in Jaipur, Rajasthan. Study units the wives of patients attending the department of psychiatry, with a diagnosis of Alcohol Dependence. On the basis of exclusion and inclusion criteria, 130 subjects were studied. Demographic details and clinical history of wives of patients with alcohol dependence were noted and GHQ-12 was used to screen for the presence of psychiatric comorbidity. They were further assessed for the presence of anxiety and depression by the psychiatrist and were diagnosed according to the ICD-10 diagnostic criteria.* ***Result:*** *74 out of 130 (56.92%) subjects were found to have some psychiatric morbidity. According to ICD 37.84% (n = 28) were diagnosed with mixed anxiety depressive disorder, 24.32 % (n = 18) were diagnosed with depression and 22.97% (n = 17) were diagnosed with anxiety.* ***Conclusion:*** *The present study concludes that the wives of patients with Alcohol Use Disorders have significant psychiatric co morbidities. Mixed anxiety depressive disorder was the most common diagnosis among all followed by Depression and Anxiety.*

Key words*: Alcohol use disorder, Spouses,Comorbidity, Anxiety, Depression.*

Introduction

Alcoholism is one of the major public health problems being the world's third largest risk factor for disease and disability. Alcoholism causes harm to the well-being and health of not just the person but to the family as a whole. Spouses are mostly affected among the family members. This adversely affects the wives of alcoholics in their social and functional roles of being mother, sister and home maker impacting the family harmony. Addressing the mental health issues of spouses of alcoholics will reduce their burden and also improve their quality of life and treatment outcome of alcoholics. [1] Due to lack of understanding and irresponsible behaviour of the husbands, wives often go through severe stress leading to psychiatric disorders such as depression, anxiety, stress related neurological disorders. The wife of an alcoholic, enters her new life with a heart full expectation, but she faces tough life situations from the alcoholic husband. The expected outcomes of marriage such as safe secured life, lifelong companionship, sexuality and reproduction, and social respect are not met by the alcoholic husband, the wives become depressed and their marital life becomes unstable.[2] Thus, alcoholism is a "family illness" because it impacts the entire family and the

wife being prime victim as there is no way she can escape or ignore their alcoholic husband. The wives of alcoholics thus face multiple traumatic and stressful situations that are often a prolonged impacting their personality.[3] A significant number of wives of alcoholics are now being diagnosed with various disorders as a direct result of their husbands' drinking. A study conducted in India showed 65% of the wives of alcoholics had psychiatric disorders ranging from mood and anxiety disorders to major depressive disorders. In India, cultural barriers prevent women from speaking out about marital issues, and there is a sense of acceptance of the husband's behaviour despite continued abuse. These women being the primary caregivers of their spouses and suffer in silence from a range of physical and psycho social problems.[4] The wives of alcoholics may have feelings of hatred, self-pity, social withdrawal, and become physically or mentally ill. Very often the wives of alcoholics have to perform the roles of both parents. Family responsibilities shift from to one parent. As a result, the pain and difficulties experienced by the wives of alcoholics in managing their family and work are inexpressible. [5] Domestic violence, emotional violence, and financial violence frequently occur and well-recognized problem faced by wives of alcoholics. As, the alcoholic is so obsessed with drinking that he ignores the needs and situations of the family and is unable to take up his expected roles and responsibilities. In such circumstances, the functions which are normally carried by husbands fall on the wives which further add to their burden and suffering. [6] Addressing the mental health issues of wives of alcoholics will not only reduce their burden but also improve their quality of life and treatment outcome of alcoholics.[7]

Methods

This cross-sectional study was conducted in psychiatry department of a hospital attached to a medical college after approval from the research ethics committee. Participants consist of wives of newly diagnosed alcohol dependence patients accompanying them in the psychiatry OPD for treatment of alcohol disorder.

Study Group: The study group consisted of 130 wives of alcohol dependent patients attending psychiatric OPD.

Inclusion Criteria

1. Wives (above18 years) of patients with newly diagnosed Alcohol Dependence attending psychiatry outpatient department/ De-addiction centre of tertiary care medical college and hospital in Rajasthan.
2. Wives of patients with Alcohol Use Disorders who will give written informed consent to participate in the study.

Exclusion Criteria

1. Presence of any significant medical and/or surgical co-morbidity and/or Intellectual disability.
2. Wives of patients with Alcohol Use Disorders along with other substance dependence other than nicotine.
3. Previous history of any psychiatric illness.

Study design

Participants fulfilling the inclusion criteria were taken up for the study. These cases were enrolled after taking informed written consent from them to be included in the study. Sociodemographic details of the participants were recorded. GHQ-12[8] was used to screen for the presence of psychiatric comorbidity among the participants. Participants scoring >2 score on GHQ-12 were further assessed for the presence of depression and anxiety by the psychiatrist and were diagnosed according to the ICD-10[10] diagnostic criteria. The severity of depression and anxiety was further assessed with HAM-D[11] and HAM-A[12] respectively.

Instruments of study

Self-designed semi-structured proforma was used. It included the following

- Socio-demographic data
- GHQ-12 (General Health Questionnaire) – This scale consisted of 12 questions (assessing 12 different symptoms) which evaluates the intensity of mental problems in the recent few weeks or a month. The Hindi version of GHQ-12 is a valid, reliable and sensitive tool and has been used in Indian patients.[9]
- World Health Organization. ICD-10 Classification of Mental and Behavioral Disorder; Clinical Description and Diagnostic Guide-

lines. WHO; Geneva 1992.[8]

- Hamilton Depression Rating Scale (HAM – D) for severity of Depression (Hamilton M, 1967).[11]
- Hamilton Anxiety Rating Scale (HAM – A) for severity of Anxiety (Hamilton M, 1959).[12]

The data thus collected was compiled and analyzed further. The quantitative data were analyzed by mean and standard deviation, and qualitative data were analyzed in percentage. The statistical analysis was performed by using SPSS 26 version software.

Results

As shown in Table 1, the sample which included 130 participants consisting of wives of alcohol dependent patients. Most common age group of wives of patients with alcohol dependence was of 28-37 years (n = 42, 32.31%). Majority of participants were illiterate (n = 74, 56.92%) and homemaker (n = 64, 49.23%). Majority of participants belonged to lower - middle socioeconomic status (n = 97, 74.61%) and rural background (n = 112,86.15%). Majority of the subjects live in joint family (n = 114,87.69) and belonged to Hindu religion (n = 117,90). Maximum couples in the study had duration of marriage between 6-10 years. (n = 66, 50.76%)

Table-1: Socio-demographic distribution of wives of persons with alcohol dependence

Variables	No. (n) of pts with alcohol dependence (N=130)	Percentage (%)	No. (n) of wives of pts with alcohol dependence (N=130)	Percentage (%)
Age Group (Years)				
18-27	24	18.47	27	20.77
28-37	40	30.76	42	32.31
38-47	43	33.08	38	29.24
48-57	11	8.46	14	10.76
>58	12	9.23	09	6.92
Education				
Illiterate	68	52.30	74	56.92
Primary	28	21.53	31	23.84
Secondary	23	17.69	20	15.38
High School	11	8.46	05	3.84
Graduate & above	00	00	00	00
Occupation				
Service	23	17.69	09	6.92
Farmer	86	66.15	57	43.84
Business	21	16.15	00	00
Homemaker	00	00	64	49.23
Socio-economic status				
Upper	07	5.38		
Upper middle	11	8.46		
Lower-middle	97	74.61		
Lower	15	11.53		
Domicile				
Rural	112	86.15		
Urban	18	13.84		
Family Type				
Joint	114	87.69		
Nuclear	16	12.30		
Religion				
Hindu	117	90		
Muslim	08	6.15		
Sikh	05	3.84		
Duration of marriage				
< 1 year	15	11.53		
1–5 years	28	21.53		
6–10 years	66	50.76		
> 10 years	21	16.15		

As shown in Table 2. Majority of patients in our study had duration of alcohol intake as 6-10 years. (n = 72, 55.38%).

Table-2. Duration of alcohol intake of male patients with alcohol dependence

S.No.	Duration of alcohol intake (years)	No. of pts with alcohol dependence	Percentage
1.	0-5	19	14.61
2.	6-10	72	55.38
3.	11-15	15	11.53
4.	16-20	13	10
5.	>20	11	8.46
	Total	130	100

According to Table 3. Substance use in wives of patients of alcohol dependence was (n = 22, 16.92%) comprising of (n = 07, 5.38%) of alcohol and (n = 15, 11.53%) of nicotine and others.

Table-3. Substance use in wives of patients with alcohol dependence

S.No.	Substance use	No. of wives of patients with alcohol and substance use	Percentage
1.	Alcohol	07	5.38
2.	Nicotine & Others	15	11.53
	Total	22	16.92

As shown in Table 4. On applying GHQ-12 Hindi version, out of 130 participants, 74 participants (56.92%) scored more than 2 (cut-off score 2).

Table-4: Psychiatric comorbidity (GHQ-12)

Psychiatric comorbidity in wives of person with alcohol dependence	Number of participants, n = 60, (%)
Yes	74 (56.92%)
No	56 (43.08%)
Total	130 (100%)

As shown in Table 5. In our study majority of patients were diagnosed with Mixed Anxiety and Depressive disorder (n-28, 37.84%) followed by depression (n=18, 24.32%) that was followed by anxiety (n=17, 22.97%) and then others (including Adjustment disorder, Panic disorder, Conversion disorder, Insomnia and OCD) (n=11, 14.86%) according to ICD-10 diagnostic criteria.

Table-5. Psychiatric morbidity in wives of patients with alcohol dependence according to ICD10

S. No.	ICD 10 Diagnosis	No. of wives of patients with alcohol dependence	Percentage
1.	Depression	18	24.32%
2.	Mixed Anxiety and Depressive Disorder	28	37.84%
3.	Anxiety	17	22.97%
4.	Others (Adjustment Disorder, Panic Disorder, Conversion disorder, Insomnia, OCD)	11	14.86%
	Total	74	100%

As shown in Table 6. In our study, wives of patients of alcohol dependence diagnosed with depression were further assessed for severity of depression with HAM-D. According to HAM-D scores majority of our subjects were diagnosed with Mild-Moderate depression (n=18, 40.90%) followed by mild depression (n=15, 34.10%) and moderate-severe depression (n=11, 25%).

Table-6. Severity of depression in wives of patients with alcohol dependence in HAM-D

S.No.	HAM-D Severity	No. of wives of pts with alcohol dependence	Percentage
1.	Mild	15	34.10
2.	Mild-Moderate	18	40.90
3.	Moderate- Severe	11	25
	Total	44	100

As shown in Table 7. In our study, wives of patients of alcohol dependence diagnosed with anxiety were further assessed for severity of anxiety with HAM-A. According to HAM-A scores majority of our subjects were diagnosed with Mild-Moderate anxiety (n=19, 40.42%) followed by mild anxiety (n=16, 34.04%) and moderate-severe anxiety (n=12, 25.54%).

Discussion

In our study, majority of the subjects were in the age group of 28-37 years, illiterate, homemaker

Table-7. Severity of anxiety in wives of patients with alcohol dependence in HAM-A

S.No.	HAM-D Severity	No. of wives of pts with alcohol dependence	Percentage
1.	Mild	16	34.04
2.	Mild-Moderate	19	40.42
3.	Moderate-Severe	12	25.54
	Total	47	100

by occupation, belonged to lower-middle socio-economic status, with rural background, living in joint family, Hindu by religion, with the duration of marriage 6-10 years. Our findings were in resonance with the findings of, Sharma et al[6] in terms of the comparatively younger age of the participants and Ghosh et al[12] in terms of religion, domicile, family type, education and socioeconomic status. However, our findings were in contrast with the findings of study done by Sreekumar et al[13] in which majority of the subjects were of middle age group, educated and employed. The possible reason behind this could be that our institution where this study was conducted mostly cater to the rural population.

Prevalence of psychiatric comorbidity in our study was 56.92% (n = 74) which was in resonance with the findings of Dandu et al,[14] Rajsheker et al[7] and Sedain[15] who reported 66%, 56% and 58% psychiatric comorbidity in their study respectively. On the other hand, Soni et al,[16] Kishore et al[17] reported 79% and 90% psychiatric comorbidity in their study respectively.

In our study, most common psychiatric morbidity was found to be Mixed Anxiety and Depressive disorder (37.84%), followed by depression (24.32%), followed by anxiety (22.97%). However in the comparative studies of Dostanic et al,[17] Rajashekar,[7] Bagul et al,[18] Sedain[14] majority of subjects suffered from depression (34.6%, 37%, 35% and 28.26%) followed by anxiety (25.2%, 15%, 15% and 8.70%) respectively.

Limitations

- The study was a cross sectional study with a small sample size, it could have yielded more information if a longitudinal study with adequate sample size was planned on this issue.
- The study was conducted in the population attending the hospital, which forms a self-selected group. As such the findings cannot be generalized to the person staying in the community.
- The severity of alcohol dependence was not assessed.
- Type of violence by spouses of patients with alcohol dependence was not assessed.
- Psychiatric morbidity and personality of the patients of alcohol dependence was not taken into consideration.
- The stress on patients of alcohol dependence was not assessed.
- The coping strategies of wives of patients with alcohol dependence were not discussed.

Conclusion

The present study concludes that the wives of patients with Alcohol Use Disorders have significant psychiatric morbidity in the form of Mixed anxiety and depressive disorder followed by depression and anxiety.

Implications of the Study

Our results showed that wives of patients with Alcohol Use Disorders have high prevalence of mixed anxiety and depressive disorder followed by depression and anxiety as psychiatric comorbidity. While assessing alcoholic patients, treating doctor should ensure mental health screening of wives also for early diagnosis and management.

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Original Article

Development and validation of MAPNI Questionnaire and Myths, Beliefs and Perceived Stigma towards Neuro-psychiatric Illness

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ABSTRACT

Background & Objectives*: In many parts of India, mental illness is still considered as shame and a taboo. Development and validation of an assessment tool that measures the domains of myths, beliefs and perceived stigma towards mental illness in a questionnaire, with items based on Indian culture and practices was the main aim of the study.* ***Material and Methods:*** *The study was conducted at Bakson Homoeopathic Medical College & Hospital, Greater Noida in collaboration with the Department of Psychology & Mental Health, Gautam Buddha University, Greater Noida and has been planned in two phases. The phase 1 includes development and validation of Myths And Perceived stigma towards Neuro-psychiatric Illness (MAPNI) questionnaire through a pilot work. The phase 2 will be a carried out in future to explore and compare the nature of beliefs, myths and perceived stigma based on educational status among Greater Noida population using the MAPNI questionnaire. The presented work is the Phase 1 of the study and was carried out in 2 stages. In stage 1, from the existing literature and available measures, a 30-item questionnaire was developed as per the aptness of their contextual meaning and suitability according to the socio-cultural ethnicity of Indian population. In stage 2, the researchers evaluated the internal consistency and reliability of the MAPNI Questionnaire in a sample study population.* ***Results:*** *The Cronbach alpha value against the overall MAPNI Questionnaire was 0.792 and is acceptable. The results of the survey emphasize the reliability and consistency of the questionnaire.* ***Conclusion:*** *The MAPNI Questionnaire is validated for its reliability and consistency. The questionnaire is expected to serve its profitability in measuring the prevalence of myths, beliefs and perceived stigma in any population and assist in planning awareness and interventional programs in that population.*

Keywords: *Neuro-psychiatric Illness, Myths And Perceived stigma towards Neuro-psychiatric Illness (MAPNI) Questionnaire, Reliability, Validity*

Introduction

The cultural aspects are socially constructed and varied in different countries and population. In a country like India, where the ethnicity and traditional customs change every 25 miles, the entire concept of mental illness and its causes are also very different from that of the Western world.[1] Since the ancient epoch, there are different theories related to mental illness prevailing in the Indian culture. The belief that some maleficent evil soul has possessed the human body, or some magical spirit like witchcraft and magic has been done to the possessor was common. It was also believed that mental illness is because of God's punishment for past sins and these are the major reasons that cause a change in the person's psychology and inappropriate behavior.[2,3]

This age-old concept regarding history of diseases is still believed, especially in case of neuropsychiatric disorders. The mental disease is considered a taboo and a matter of shame by the people.[1] Despite the withstanding efforts and awareness programs, the health seeking behavior patterns towards neuro-psychiatric ailments is still of traditional healing than modern psychiatric treatment.[4] The major influencers in seeking treatment and reporting of the disease are the existing stigma, discrimination and the cause of the mental diseases.[5] Culture not only influences perceptions and reactions, but it also even contributes to frequent occurrence of mental illnesses. Culture bestows upon modelling and shaping of symptoms of a mentally ill person.[6] In most of the cultures, especially India signs of mental illness are identified as negative and anti-social behavior, any behavior which is different from the expected 'normal'.[7]

For a better understanding of the terms of 'belief', 'myth' and 'stigma', separate elaborations have been given here. Beliefs are claimed to be formed at a very early age and are the conclusions that we draw from our past experiences. Belief is subjectively a mental interpretation derived from perception, contemplation (reasoning), or communication and can be considered as mental acceptance of a claim to be true, regardless of any supporting or contrary empirical evidence.[8] As per Tao de Hass, a famous psychotherapist "A belief is something that you believe or accept as true. You might believe something based on a fact, an opinion or an assumption. When you believe something, you might not have immediate personal knowledge but you are satisfied that something is the way it is."[9]

Likewise, 'Myth' usually refers to a story of forgotten and vague origin which is mostly of religious or supernatural origin, through which people seek to explain and rationalize prevailing aspects of the world or a society.[8] In a broad sense, the word myth can refer to any traditional story, popular misconception or imaginary entity.[10] Similarly, 'Stigma' connotes to a deep mark of shame and degradation carried by any individual as a function of being a member of a devalued social group.[11] Therefore, display of a negative attitude toward psychiatric patients lead to a deep-seated prejudice toward mental illness that may manifest among common public in the form of fear and intolerance. This culminates in further fortifying the stigma surrounding mental illness, and hence a vicious cycle ensues.[12] Beliefs, myths and perceived stigma about mental illness potentially emerge and are shaped by personal knowledge with the influence of pre-existing belief systems, cultural influences about mental illness and interventions. Cultural aspects play an important role in establishing personal thoughts related to mental illness. For e.g., a study on Jewish population revealed that they think mental illness is seen as an opportunity to receive divine messages, a means of forgiveness, and to improve their souls. However, Southeast Asians perceive that supernatural forces/phenomenon are responsible for mental health issues and consider them the result denial of spirit or deities.[13]

Socio-cultural background of an individual plays a role on how an individual reacts towards any pre-defined notion (like mental illness) in the society. There are many sociocultural theories related to human behavior. Vygotsky's sociocultural theory states that human development is a socially mediated process where children acquire their cultural values, beliefs, and problem-solving strategies through communication with more knowledgeable members/ peers of society. While Piaget theory believed that a child builds a unique view of the world, Vygotsky suggested that others within a child's social circle influence their perspectives, values, and attitudes.[14] It is often seen that myths and beliefs are expressed negatively and the mentally ill patients face rejection, exploitation and discrimination. A large proportion of population remains deprived of mental health care services due to stigma and suffers the adverse consequences of poor quality care. Myths around mental illnesses fuels this stigma and discrimination makes it harder to reach out for help.

Based on this review, to measure the domain of beliefs, myths and perceived stigma in Indian population, need for an apt measuring tool that can assess the existing notions towards mental illness in the community was felt. The rationale for developing the Myths And Perceived Stigma towards Neuro-psychiatric Illness (MAPNI) Questionnaire is:

1. There is a gap between the reported data regarding mental disease patients and the actual population in India. The reasons being the existing myths, wrong beliefs and associated stigmatization towards mental illness. The people do not themselves seek

help due to the societal issues and even the family members, do not either realize or are unaware of the condition and those cases, never get adequate treatment.

2. There is no standardization in Indian population.
3. Cultural differences and local parlance issues exist in the existing scales in terms of content of the items as regard to Indian population.

So, to justify the need, based on face validity and content validity in Indian adaptation and keeping in mind, the socio-cultural background a questionnaire was developed considering the items that satisfy the criteria for social context, people's beliefs and existing stigma in society towards mentally ill people and which may cover all the given attributes together and validated in Phase 1.

Material and Methods

The current exploratory survey study is planned in two phases. The pilot work (Phase 1) with the objective to develop and validate the MAPNI questionnaire, based on socio-cultural context, existing literature and available measures on beliefs, myths and perceived stigma with respect to mental illness was conducted in two stages and has been presented below. The main study (Phase 2) aiming to measure and explore the nature of beliefs, myths and perceived stigma based on educational status among Greater Noida population will sequentially be carried out in the future.

Stage 1: Questionnaire Development of an assessment tool for Myths and Perceived stigma towards Neuropsychiatric Illness from April 2021 to October 2021.

The objective of the qualitative phase was to identify the available tools to assess the beliefs, myths and stigma towards mental illness in the community. A thorough literature review of the published data available from web search was done. This scale was designed by taking references from the pre-existing scales along with few self-developed questions by the contribution of technical expertise. A review of published questionnaires such as CAMI,[15] ISMI,[16] Beliefs toward mental illness (BMI) scale,[17] DISC-12,[18] scales used in studies 'Myths about mental illness among the care givers of mentally ill clients'[19] and 'Myths & Misconceptions of Mental Illness and Health Seeking Behaviour of Adults'[20] was undertaken to identify the question items. Relevant points from the available published papers and questionnaires regarding the common beliefs, myths, stigma and attitude of people towards mentally ill sufferers was discussed, understood and the appropriate points were shortlisted. For the newly drafted questionnaire a bank of questions was formed to enable to produce multi-items scale and from those Question items, 30 items were drafted considering three domains, beliefs, myths and perceived stigma towards neuropsychiatric illness in context with Indian population. Among those, 15 positively and 15 negatively worded question items were structured. In successive meetings the items were revised for their meaning, relevance and adaptability to the socio-cultural aspect of Indian population. Each item was ranked on a Likert scale of '1 to 5' against options as 'Strongly disagree", "Disagree", "Can't say", "Agree" and "Strongly agree" with 15 items measuring positive approach and other 15 negatively worded questions were given reverse scoring. The questionnaire was translated in Hindi language and was undergone the process of reverse validation.

Following the Delphi process, five experts were invited from the Department of Psychology and Mental Health of Gautam Buddha University to share their opinion. First round they assessed the questionnaire through interrogation and ranked their agreement with each item of the questionnaire. In second round there was a trial of Questionnaire performed among the students of final BHMS, MD (Homoeopathy) and MPhil (Clinical Psychology). Through that trial survey the "unable to understand" and "misinter-preted" categories of question items were reformed. In third round, an acceptable degree of consensus was finally obtained and the process was deemed complete. The name of the newly developed Questionnaire was proposed unanimously as Myths And Perceived Stigma towards Neuropsychiatric Illness-MAPNI. The time taken to fill the questionnaire is about 5-7 minutes. Later, the IEC approved protocol was presented to the Expert Panel at 6th International Conference of Indian Academy of Health Psychology (ICIAHP-2021) held from 26 to 28 November 2021 to receive the comments and reviews towards the objective of the Project. The opinions expressed were noted and

accordingly, changes were incorporated feasibly.

All the co-investigators were trained to administer the newly developed MAPNI questionnaire in the sample through a six-day training, held as an In-house training program at Bakson Homoeopathic Medical College and Hospital. Thereafter, having finished the pre-requisites of the survey, the study areas were identified.

Step 2: Administration of MAPNI Questionnaire from November 2021 to December 2021

The design of the study was a comparative, cross- sectional exploratory study and was done by interviewing the subjects from POPDs (Surajpur, Malakhpur) and OPD of Bakson Homoeopathic Medical College and Hospital, Greater Noida.

The Selection of samples was done in four groups:

Group A- No education

Group B- education till 8th standard

Group C- education from 9th to 12th standard

Group D- Graduation and above

Total targeted sample size taken was 140. There were 15 people who either withdrew consent or refused to fill the questionnaire and left the form incomplete. So, they were considered as drop-outs and total 125 sample was achieved and were included in the final analysis. Subjects falling between the age 25 years to 59 years from each of uneducated and varied level of education groups were included in the study. The exclusion criteria were the subjects having any major medical as well as neuropsychiatric disorder or having any form of permanent disability.

Using an interview method with the set of consent form, demographic Sheet and MAPNI questions, the survey was conducted in different areas of Greater Noida. Keeping in mind the exploratory nature of the study, a sample of 125 was achieved from people of different educational backgrounds. The interviewers were given Informed consent before enrolling them in the survey. All the subjects were interviewed on various measures and their responses were recorded based on Likert scale with respect to each of the variable. (Table 1)

The instructions on the questionnaire conveyed clear indications for anonymity and confidentiality. Individual responses to the 30 item questionnaires by each respondent (n=125) were recorded. The total scores were calculated and higher scores indicated higher myths, wrong beliefs and negative perceived stigma for mentally ill persons. Data were collected and extracted manually in specially designed extraction sheet before data entry and analyzed. The items identified in the questionnaire were tested for internal reliability through Cronbach's alpha coefficient. The statistical analysis was done using SPSS software.

Results

Baseline characteristics-

The demographic factors of 125 samples were taken at baseline. Out of 125 samples, 27 (21.6%) were in Education *Group A:* no education at all, 28 (22.4%) in *Group B:* education till 8th std, 36 (28.8%) in *Group C:* education 9th-12th standard and 34 (27.2%) in *Group D:* education above graduation and post-graduation. According to the age, in the age group of less than 30 years there were 39 (31.2%), in 31-40 years were 49 (39.2%), between 41-50 years there were 30 (24%) and above 50 years, 7 (5.6%) respondents. 73 (58.4%) people were of urban population and 52 (41.6%) came from rural background. According to religion, 116 (92.8%) samples were Hindu, 8(6.4%) were Muslim and 1 (0.8%) were Sikh. Based on the socio-economic class, respondents were categorized into middle and poor class, with 8 (6.4%), 75 (60%) and 42 (33.6%) in each category respectively. There were 107 (85.6%) married samples and 18 (14.4%) unmarried. No major past history of any single illness was significantly present in the sample. None of the respondents had permanent disability of any sort. 9 (7.2%) people mentioned having a family history or a family member is suffering from mental illness.

12 (9.6%) sample mentioned a positive history of COVID-19 and 64 (51.2%) people took 2 doses of vaccination against COVID, 47 (37.6%) had taken the 1st dose and 14 (11.2%) were not vaccinated.

Reliability & Validity

Researchers examined the descriptive statistics of mean and standard deviation, skewness, kurtosis and range of all question items (Table 2). The skewness and kurtosis signify that data lies within the accepted normality range of ± 2. The reliability

Table-1: Items of the MAPNI Questionnaire

Question Number	Items	Adopted/ Modified/ Self-developed
Q1.	Mentally ill person is a burden on society.*	Modified[15]
Q2 .	Mental illness is an illness like any other.	Adopted[15]
Q3.	Mental Illness is God's punishment for past sins. *	Adopted[19]
Q4.	There is nothing to feel embarrassed with the term "psychological disorder".	Adopted[17]
Q5.	A mentally ill person is more likely to harm others than a normal person.*	Adopted[17]
Q6.	We need to adopt a far more tolerant attitude towards mentally ill people in our society.	Adopted[15]
Q7.	Individuals diagnosed as mentally ill will suffer from its symptoms throughout their life.*	Adopted[17]
Q8.	We should not stay away from people who have psychological disorder because their behaviour is not always harmful.	Modified[15]
Q9.	It is difficult for mentally ill people to follow social rules such as being punctual or keeping promises.*	Modified[17]
Q10.	Mental patients should be encouraged to assume the responsibilities of normal life.	Modified[15]
Q11.	Most people would not knowingly be friends with a mentally ill person.*	Adopted[17]
Q12.	Any person who was once patient in a mental hospital can be trusted for house help.	Modified[15]
Q13.	The best way to handle the mentally ill is to keep them behind locked doors.*	Adopted[15]
Q14.	During lifetime, anyone can become mentally ill.	Modified[15]
Q15.	The mentally ill people should be isolated from the rest of the community.*	Adopted[15]
Q16.	The mentally ill people should not be denied of their individual rights.	Adopted[15]
Q17.	There is nothing to be embarrassed if people know that I have relationship with a person who received psychological treatment.	Modified[17]
Q18.	A person would be foolish to marry someone who had suffered from mental illness, even though he seems fully recovered.*	Modified[15]
Q19.	Mentally ill person is controlled by evil spirits/ghosts.*	Self-developed
Q20.	Anyone with a history of mental problems should be excluded from taking public office.*	Adopted[15]
Q21.	A mentally ill person do not deserve our sympathy.*	Modified[15]
Q22.	I would trust the work of a person assigned to my work team, who has recovered from mental illness.	Modified[17]
Q23.	Locating mental health services in residential neighbourhood endangers local residents.*	Modified[15]
Q24.	I would have no problem to live next door to someone who has any mentally illness.	Modified[15]
Q25.	The behaviour of people who have any psychological disorders is unpredictable.*	Adopted[17]
Q26.	Any person suffering from mental illness should not be forbidden to follow religious practices like others.	Adopted[16]
Q27.	People with mental illness can't contribute anything to society.*	Modified[16]
Q28.	People with mental illness can live a good, rewarding Life.	Adopted[16]
Q29.	Mental illness is something people should hide and be ashamed of.*	Adopted[19]
Q30.	I will be comfortable in sharing public transport with a person suffering from any mental illness.	Adopted[16]

*These items are negatively worded, and the scores are considered in reverse order.

and internal consistency were evaluated for the total items of the questionnaire using Cronbach's alpha. The Cronbach's alpha for the total items of MAPNI Questionnaire was achieved as 0.792. The coefficient of Cronbach's Alpha for the items yielded Acceptable reliability level.[21]

To establish the internal consistency and reliability of the questionnaire in the study groups, mean scores and 95% confidence intervals were computed in the four study groups presented in Table 3. Analysis of variance of mean scores on four study groups yielded F value at df = 3 of 7.736 (P < 0.000).

Table 3: Internal consistency evaluated by the value of Cronbach's alpha (Study groups)

Discussion

Construction and Development-

There are many scales that aim to separately measure the attributes of beliefs, myths and perceived stigma of community people towards mental disease and the mentally ill. However, the attributes of belief, myth and perceived stigma are connected as the existing beliefs in the people create the myths and perceptions regarding anything, and these

Table-2: Descriptive statistics for each item to indicate the variability in responses

Question Items	Mean ± SD	Median /IQR	Observed range	Skewness (SE=.217)	Kurtosis (SE=.430)
Q1.	2.63 ± 1.468	2/1-4	1-5	.475	-1.194
Q2 .	3.00 ± 1.338	3/2-4	1-5	.185	-1.252
Q3.	2.94 ± 1.564	3/1-5	1-5	.108	-1.552
Q4.	2.19 ± 1.134	2/1-2	1-5	1.200	.864
Q5.	3.46 ± 1.215	4/2.5-4	1-5	-.545	-.709
Q6.	1.86 ± 0.846	2/1-2	1-5	1.321	2.124
Q7.	3.02 ± 1.221	3/2-4	1-5	.197	-.973
Q8.	2.22 ± 1.046	2/2-2	1-5	1.126	.796
Q9.	3.97 ± 1.008	4/4-5	1-5	-.993	.387
Q10.	2.06 ± 0.978	2/1-2	1-5	1.358	1.904
Q11.	3.99 ± 0.955	4/4-5	1-5	-1.115	.975
Q12.	2.68 ± 1.154	2/2-3	1-5	.558	-.531
Q13.	2.45 ± 1.400	2/1-4	1-5	.682	-.892
Q14.	1.81 ± 0.931	2/1-2	1-5	1.675	3.275
Q15.	2.34 ± 1.270	2/1-3	1-5	.832	-.449
Q16.	2.12 ± 1.075	2/1-2	1-5	1.184	.877
Q17.	1.77 ± 0.934	2/1-2	1-5	1.566	2.614
Q18.	2.70 ± 1.297	2/2-4	1-5	.540	-.875
Q19.	2.25 ± 1.412	2/1-3	1-5	.876	-.604
Q20.	3.10 ± 1.204	3/2-4	1-5	-.034	-1.204
Q21.	2.51 ± 1.342	2/1-4	1-5	.544	-1.006
Q22.	2.70 ± 1.070	2/2-3	1-5	.577	-.445
Q23.	2.57 ± 1.328	2/2-4	1-5	.439	-1.164
Q24.	2.51 ± 1.280	2/1.5-4	1-5	.488	-.958
Q25.	3.74 ± 1.158	4/3-5	1-5	-.797	-.055
Q26.	2.17 ± 1.230	2/1-3	1-5	.943	-.173
Q27.	2.74 ± 1.290	2/2-4	1-5	.369	-.975
Q28.	2.41 ± 1.129	2/2-3	1-5	.744	-.162
Q29.	1.79 ± 1.117	1/1-2	1-5	1.693	2.279
Q30.	2.90 ± 1.364	3/2-4	1-5	.292	-1.223

Table-3: Internal consistency evaluated by the value of Cronbach's alpha (Study groups)

Study Group	N	Mean ± SD (95% CI)	Cronbach's Alpha	ANOVA (one-way)	P value
Group A	27	85.41 ± 14.653	0.818	7.736	0.000
Group B	28	83.82 ± 13.024	0.759		
Group C	36	75.22 ± 10.210	0.550		
Group D	34	72.47 ± 12.903	0.852		
Overall	125		0.792		

perceptions among the common people give rise to stigmas. MAPNI Questionnaire was developed to measure all the three attributes together at the same time, understanding the concept of their inter relatedness and utility in signifying the existing scenario in the study population. The items included in the questionnaire are relevant in terms of their contextual language and socio-cultural aspect as far as Indian population is concerned. The pre-existing tools lack these and many of the items in the available tools do not seem relevant in Indian population. Though, no proper explanation as why these differences exist is established, but there is difference among various cultural groups in relation to mental illness stigma and beliefs.[22]

The review of literature helped us in identifying the existing measures in the area of beliefs, myths and perceived stigma and we came across various scales. These scales consisted of items that were more culturally biased and not applicable to people in India. According to the face validity and content validity of each item in the preexisting scales, the items were shortlisted for the MAPNI Questionnaire as per their aptness and suitability in the Indian

population. An initial draft of 63 questions was first made. In successive sessions, the selected items from the draft were further slashed removing the repetitive and similar meaning items and a second draft of the questionnaire with 45 items, that were either adopted in the same form (without any changes in the item, extracted from any preexisting scales), or modified in their content to measure the desired variables in the new questionnaire (taken from preexisting scales) or were self-developed as suggested by the experts was devised (Table 1). After the Delphi process (as mentioned in methodology), the final question-naire with 30 items measuring the beliefs, myths and perceived stigma towards neuro-psychiatric illness was thus created. The advantage of this questionnaire is that it can distinctively measure three inter-related variables of neuropsychiatric illness all at once .

Psychometric properties

The 30-item MAPNI Questionnaire has been studied for its reliability and validity in 125 samples from the population based on their education status and appears to be a reliable and valid tool to measure the beliefs, myths and perceived stigma towards neuropsychiatric illnesses in Indian population. The study samples were categorized in four different groups (Group A, Group B, Group C, Group D) on the basis of their education standard and the responses were noted. The overall Cronbach alpha value against the items of the MAPNI questionnaire (Table 3) indicates high level of reliability and validity and is at par with the other existing scales in the area.

A stigma related behavior measure scale named as Reported and Intended Behaviour Scale (RIBS) developed and validated by Evans-Lacko et al[24] showed similar values of coefficient of alpha.[23] A similar development and validation study for the Community attitude towards mental illness scale (CAMI), revealed a significant coefficient of alpha of 0.876. The CAMI scale is a 40-item scale that measures the four subscales of Authoritarianism (AU), Benevolence (BE), Social Restrictiveness (SR), and Community Mental Health Ideology (CMHI) all having 10 items, each.[15] CAMI is a widely used tool to measure attitude of the people towards mental ill patients. Another tool named as, Mental Health Knowledge Schedule (MAKS) had the Cronbach's alpha value of 0.749, which supports the results of this study. MAKS is a 12-item scale that comprises domains of relevant evidence-based knowledge in relation to stigma toward mental illness.[24] King et al[25] in 2007 developed and validated the standardised measure of the stigma of mental illness with the name of the Stigma scale showing similar results of Cronbach alpha value of 0.87. A psychometric validation study[26] of Belief towards Mental Illness (BMI) in Turkish population concluded the high consistency and validity of the scale with Cronbach value of 0.82.

Future applications

In order to measure these attributes significantly in the targeted Indian population, a need of a scale or questionnaire was felt and MAPNI Questionnaire was a forward step in this direction. The questionnaire is first of its kind, which has been developed and constructed keeping in mind the ethnicity and socio-cultural context of Indian people. This questionnaire may be used as a reliable measure to study the beliefs, myths and perceived stigma in Indian context, which may help further in designing the educative and mental health activities to overcome stigma and modify the attitude, beliefs and stigma towards mental illness in the society and community.

Conclusion

This MAPNI questionnaire measuring all three aspects of beliefs, myths and perceived stigma towards neuropsychiatric illness is the only available tool designed keeping in mind the difference in culture, customs and beliefs in India over the western world. The utility of the scale in the community can be assessed to estimate the existing pattern of beliefs, myths and stigma in study population. With the application of such a tool, the research studies may help to plan out the treatment approaches and sensitization protocols creating awareness and knowledge on the mental illnesses. The questionnaire may be used extensively for future research in the area of assessing the nature of beliefs, myths and perceived stigma in Indian population.

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Original Article

A Study of Psychiatric Morbidities in Children Attending Child Guidance Clinic (CGC) of Tertiary Care Medical College & Hospital, Rajasthan

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ABSTRACT

Background: *There are 472 million children under the age of 18 years, representing 39% of the India's total population. Therefore, in such a large population of children mental health is an essential component of overall health and its burden is to be recognized.* ***Aims and Objectives:*** *To study the socio-demographic profile and assess psychiatric morbidity among children (age 6-12 yrs) attending Child Guidance Clinic (CGC).* ***Materials and Methods****: Eighty-five children of age 6-12 years attending CGC were assessed. Socio-demographic details were recorded by using a specially designed semi structured proforma. Further all the participants were screened by using Paediatric symptom checklist- 35 and diagnoses were made as per International Classification of Diseases 10th edition criteria.* ***Results:*** *Out of 85 participants, majority (n=50, 58.8%) were boys. Maximum children belonged to nuclear type families (n=52 , 61.17%), were residing in rural areas (n =47, 55.29%) and going to school (n =63, 74.11%). Family history of psychiatric illness was present in (n=15 , 17.64%) case. Mental retardation /Intellectual disability disorder is the most common diagnosis found in our study.* ***Conclusion****: The maximum number of the children in our study presenting to psychiatric CGC were boys, belong to rural background, and were going to school. The most common diagnosis observed among the participants was Mental retardation/Intellectual Disability Disorder.*

Keywords*: Child Guidance Clinic , Psychological profile, Developmental disorders, Emotional & Behavioural issues.*

Introduction

There are 472 million children under the age of 18 years, representing 39% of the India's total population. According to literature, children and adolescents approximately about 10-20% are affected by psychiatric problems annually for those aged 5 years and above and psychiatric morbidity accounts for 5 of the 10 leading causes of disability in this age-group.[2]

Mental health in young people is an essential component of overall health and its importance is being recognized. It is seen in many studies a large number of children are getting disabled from various mental illnesses worldwide. [3]

Mental health of a child may be affected by several factors such as environmental factors, life events like adverse family conditions, maternal separation or deprivation, sibling birth, divorce of parents, bereavement, physical handicap, urbanism and maternal depression etc. Additionally, psychiatric morbidity profile of children may show different needs and priorities.[4]

Currently there is a scarcity of studies related to prevalence of psychiatric morbidity among children specially from the Rajasthan area. This study was planned to fill the current gap in literature.

The finding of this study may help in increasing the awareness about psychiatric problems in the community.

Materials and Methods

The Study was conducted in child guidance clinic (CGC) of tertiary care medical college and hospital, Jaipur, Rajasthan. The study was conducted after permission from Scientific and Institutional Ethics Committee.

It is a cross – sectional study which included sample of 85 children, either male or female, in the age group of 6-12 years attending CGC. A voluntary written informed consent was taken for participation from all the subject's parents or guardians after explaining the purpose and design of the study. Subjects having any significant medical and surgical co-morbidity, with seizure disorders, head injury, and organic brain syndrome were excluded from the study.

Socio-demographic details of the participants were recorded by using a specially designed semi structured proforma to capture socio-demographic data. Afterwards, all the participants were screened by using Paediatric symptom checklist-35.[5] Additionally, both the subjects and their parents/ guardians were interviewed and psychiatric diagnoses were made as per International Classification of Diseases 10th edition criteria.[6]

Results

Table 1 shows the sociodemographic distribution of participants. Maximum number of the patients (n = 50, 58.8%) were boys. Most of them belonged to Hindu religion (n = 70, 82.35%), nuclear families (n = 52, 61.17%), were residing in rural areas (n = 47, 55.29%) and going to school (n = 63, 74.11%). Family history for psychiatric illness was present in (n = 15, 17.64 %) case.

Table 2 shows the pattern of psychiatric disorder among the participants. Most common psychiatric diagnosis in this study is Mental Retardation/ Intellectual Disability Disorder (n = 21, 24.70%)

Other disorders which were observed were anxiety disorder /phobia/panic disorder/GAD (n = 12, 14.11%), attention deficit hyperactivity disorder/ ADHD (n = 11, 12.94 %), specific learning disorders of scholastic skills (n = 9, 10.58%), pervasive developmental disorder / autism (n = 7, 8.23%), depressive episode(n = 6, 7.05%), conduct disorder (n = 4, 4.70%), non-organic enuresis (n = 4, 4.70 %), Other less observed disorders were acute stress reaction (n = 3, 3.52%), tic disorder (n = 2, 2.35%), trichotillomania (n = 2, 2.35%), obsessive – compulsive disorder (n = 2, 2.35%), psychosis NOS / schizophrenia (n = 1, 1.17%), and dissociative disorder (n = 1, 1.17%).

Table-1: Socio-demographic details of the sample

Variables	No of children (n=85)	n%
Gender		
Boys	50	58.8%
Girls	35	41.17%
Religion		
Hindu	70	82.35%
Muslim	15	17.64%
Education		
Student	63	74.11%
Special School	10	11.76%
Not school going	12	14.11%
Domicile		
Urban	38	44.70%
Rural	47	55.29%
Family Type		
Nuclear	52	61.17%
Joint	33	38.82%
Family History of Psychiatric illness		
Absent	70	82.35%
Present	15	17.64%

Table-2: Distribution of subjects based on their diagnosis (ICD-10)

Table-2: Psychiatric Diagnosis (ICD-10)	Children (n = 85, n%)
Mental Retardation / Intellectual Disability Disorder	21 (24.70%)
Anxiety Disorder / Panic / Phobic disorder/GAD	12 (14.11%)
Hyperkinetic Disorder / ADHD	11 (12.94%)
Specific Developmental Disorders of scholastic skills / SLD / Dyslexia	9 (10.58%)
Pervasive Developmental Disorders / Autism	7 (8.23%)
Depressive Episode	6 (7.05%)
Non-organic Enuresis	4 (4.70%)
Conduct disorder	4 (4.70%)
Acute stress reaction	3 (3.52%)
Obsessive – compulsive Disorder (OCD)	2 (2.35%)
Tic Disorder	2 (2.35%)
Trichotillomania	2 (2.35%)
Unspecified Non-organic psychosis (NOS)/ Schizophrenia	1 (1.17%)
Dissociative / Conversion Disorder	1 (1.17%)

Table 3	Gender		Domicile	
PSYCHIATRY DIAGNOSIS(ICD-10)	**Boys**	**Girls**	**Urban**	**Rural**
Mental Retardation/ Intellectual Disability Disorder	14 (28%)	7 (20%)	7 (18.42%)	14 (29.78%)
Anxiety Disorder /Panic/Phobic disorder/GAD	6 (12%)	6 (17.14%)	7 (18.42%)	5 (10.63%)
Hyperkinetic Disorder/ADHD	8 (16%)	3 (8.57%)	5 (13.15%)	6 (12.76%)
Specific Developmental Disorders of scholastic skills /SLD/ Dyslexia	5 (10%)	4 (11.42%)	5 (13.15%)	4 (8.51%)
Pervasive Developmental Disorders /Autism	5 (10%)	2 (5.71%)	4 (10.52%)	3 (6.38%)
Depressive Episode	2 (4%)	4 (11.42%)	2 (5.26%)	4 (8.51%)
Nonorganic Enuresis	3 (6%)	1 (2.85%)	2 (5.26%)	2 (4.25%)
Conduct disorder	4 (8%)	0	3 (7.89%)	1 (2.12%)
Acute stress reaction	1 (2%)	2 (5.71%)	1 (2.63%)	2 (4.25%)
Obsessive – Compulsive Disorder (OCD)	0	2 (5.71%)	1 (2.63%)	1 (2.12%)
Tic Disorder	1 (2%)	1 (2.85%)	1 (2.63%)	1 (2.12%)
Trichotillomania	0	2 (5.71%)	0	2 (4.25 %)
Unspecified Nonorganic psychosis (NOS)/ Schizophrenia	1 (2%)	0	0	1 (2.12%)
Dissociative / Conversion Disorder	0	1 (2.85%)	0	1 (2.12%)

Table 3 shows that majority of girls had a diagnosis of mental retardation / intellectual disability disorder (n=7, 20%), followed by anxiety disorder (n = 6, 17.14%) and specific developmental disorders of scholastic skills (n =4, 11.42%) whereas among boys also most commonly diagnosis observed is mental retardation (n = 14, 28%), followed by hyperkinetic disorder/ADHD (n = 8, 16%), and anxiety disorder (n= 6, 12%).

Among rural participants in our study most of them showed mental retardation/intellectual disability disorder (n = 14, 29.78%), hyperkinetic disorder (n = 6 , 12.76%) , anxiety disorder (n = 5, 10.63%), in urban settings mental retardation / intellectual disability disorder and anxiety disorders were equally seen (n = 7 , 18.42%) followed by hyperkinetic disorder / ADHD and specific learning disorder (n = 5 , 13.15%).

Discussion

In our study, the maximum number of patients (58.8%) were boys and our findings were in resonance with the findings of Solanki & Rastogi[4] who studied the clinical profile of child and adolescents' patients, attending a mental hospital .The high proportion of boys in our study may be due to sex based differences in seeking help due to boys being given more importance in India or a higher frequency of externalizing disorders in boys which are more easily recognized due to their disruptiveness . In contrast, Prabhuswamy et al.[7] reported a preponderance of girls (61%) in their study.

Majority of the children in our study belonged to Hindus (82.35%) and (17.64%) were Muslims. This significantly high percentage found among Hindus may be because of majority of people inhabiting being Hindus in nearby area, similar to study done by Maan et al.[2] but it differed in study done by Deepthi et al[8] in which Hindus were (55%) and Christians (28.3%) were also found in her study.

In our study, maximum number of children and adolescents were school going students (74.11%), which was expected as our study sample consisted of children belonging to 6-12 age group. Forty-Seven participants (55.29%) were of rural area which could be because the institution where this study was conducted mainly caters to the rural population. Our findings were in resonance with the findings of Bhat et al[9] but in contrast with that of Shakya[10] in which rural population (18%) found to be less as compared to urban & that subjects from urban areas were more prone to psychiatric illness, this may be due to less frustration tolerance and more stressful life in urban areas.

Positive history of psychiatric illness in the family was present in (17.64%) of patients in our study and our findings were in accordance with the findings of a study done by Solanki & Rastogi[4] (16%) who studied clinical profile of child and adolescent patients attending a mental hospital OPD, it differs from study done by Sahu et al[1] in which family history is present in 28.8% of patients as large age group of 4–18 yrs. was taken in their study.

Mental retardation/ Intellectual disability disorder (24.70%) is in accordance to study done

by Chakraborty & Bandyopadhyay[11] where also most of the children were from age group 6-12 years. and thus mental retardation found to be (27%) in their study but is in contrast (7.7%) to study done by Deepthi et al.[8]

Meta analysis and review report a 4% – 32% prevalence of anxiety disorder, in our study, it was found that 14.11% screened population suffered from anxiety related disorder. In our country child rearing is more authoritarian and free verbal expression of emotions in children is not given due importance thereby bodily symptoms is the only way through which expression is conveyed.[12]

In this study 12.94% of screened patients had ADHD. This is similar to the estimated prevalence rate of ADHD in studies conducted in developing parts of the world which reported a range of 1.7% – 17.8%.[13]

Prevalence of Specific Learning disorder in our country is between 2–18% and the present study shows that 10.58% cases had Specific Learning disorder.[1]

In our study, boys exclusively shown diagnosis of conduct disorder (8%) as our study population mostly comprises of boys and this disorder is generally more common in boys compared to girls, which is similar to sahu et al[1] who studied socio-demographic profile of psychiatric disorders among Children in a tertiary care hospital but it is in contrast to study by Patil et al[13] where conduct disorder (1.7%) also diagnosed in girls.

Conclusion

Majority of the participants in our study attending CGC were boys, mostly school going, belonging to Hindu religion with rural background and living in a nuclear family. Mental retardation / Intellectual disability disorder was the most common diagnosis found in our study.

Children are very vulnerable to various chronic psychiatric disease; they need early diagnosis and prompt treatment. We can prevent various severe psychiatric illness by intervening at earlier stage. Knowledge about psychiatric morbidity pattern will help us in making treatment protocol, resource utilization, according to the health care need of children.

The results of the study have implications for clinical training, practice and policy initiatives. There is a need to plan models of service delivery in both rural and urban areas and focus on the integration of child and adolescent mental health into general health care. Clearly, manpower and training issues for pharmacological and non - pharmacological interventions will be paramount in the planning of effective mental health services. Effective networking between psychiatrists, clinical psychologists, paediatricians, neurologists, speech therapists, community-based health services, occupational therapist and special educators would be necessary.

Limitations

- Small sample size.
- Study is confined to a tertiary hospital, consisting of children attending CGC, therefore findings may not necessarily represent the general population of the country.
- This kind of study can be done on a larger sample in multiple centres with necessary modifications, will help achieve our objectives and in turn upgrade the health status of our young generations.

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Original Article

Effects of Pet Ownership on Depression, Anxiety, Stress, and Anger among Adults

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ABSTRACT

Background: *Mental health problems are common in the general population with an estimated one in six people in any past week experiencing a common mental health difficulty. Psychological benefits include increased resilience at times of adversity, increased participation in meaningful activities, increased social functioning, increased happiness and hedonic tone, and increased positive self-view and self-agency.* ***Material and Methods:*** *The present study examines depression, anxiety, stress, and anger among pet owners. A cross-sectional survey study was conducted and data from adults (N=185) was collected using two widely used tools, Depression Anxiety Stress Scale-21 (Lovibond & Lovibond, 1995), and Aggression Questionnaire (Buss & Perry, 1992).* ***Results:*** *The ANOVA test showed that there was no significant difference in depression ($F = 2.43$, $p > 0.05$), anxiety ($F = 2.08$, $p > 0.05$), stress ($F = 1.50$, $p > 0.05$), and anger ($F = 0.21$, $p > 0.05$) of the participants based on pet ownership.The Pearson's correlation coefficient showed that there was no significant difference in depression, anxiety, stress and anger of the participants based on the number of members in the family and the number of senior citizens in the family.* ***Conclusion:*** *Majority of the participants who had senior citizen(s) in their families were having a pet or were planning to get one in the near future. The study also revealed that majority of the participants who had a pet or planning to get one were living in nuclear families.*

Keywords: *Stress, Anxiety, Depression, Anger, Pet, Mental Health.*

Introduction

Mental health problems are common in the general population with an estimated one in six people in any past week experiencing a common mental health difficulty.[1] Poor mental health is the main cause of the overall disease burden worldwide, with depression and anxiety being the most predominant.[2]

Pet animals may help people in several important ways. There seem to be health benefits and physiological effects of owning pets, such as reduced blood pressure, reduced risk of heart attacks, improved survival rates, and increased physical activity.

Psychological benefits include increased resilience at times of adversity, increased participation in meaningful activities, increased social functioning, increased happiness and hedonic tone, and increased positive self-view and self-agency.[4,5] Pets may be an important social companion for those experiencing social isolation, which can buffer against the negative impacts of loneliness; thus, pets have important psychosocial functions.[6,7]

Brooks et al[8] conducted a comprehensive systematic review and found many ways in which pets help manage mental health and even facilitate recovery: one area of support pets provided is 'emotional work', or the ability to alleviate worry and provide comfort; in addition to the presence of a pet, the practical work involved in caring for a

pet, such as feeding, was reported to be a pleasant distraction from mental health concerns; pets were also found to contribute to a stronger sense of identity in pet owners with mental health conditions, including reducing negative perceptions of a mental health condition or diagnosis.

Brooks et al[9] explored the role of pets in the social networks of people managing long-term mental health problems. The study found that pets contributed, over time, to individuals developing routines that provided emotional and social support. Specifically, results indicated that pets provide the ability to gain a sense of control inherent to caring for the pet; pets provide a sense of security and routine developed in the relationship, which reinforced stable cognition from the creation of certainty that they could turn to and rely on pets in time of need; pets provide security through generating a sense of order and continuity to individual experiences and through providing a sense of meaning in an individual's life; pets provide a distraction and disruption from distressing symptoms, such as hearing voices, suicidal thoughts, rumination and facilitating routine and exercise for those who cared for them; pets provided a form of acceptance for their owners, as they began to positively associate as 'good pet owners'. This also positively impacted how others viewed them. Overall, the results of this study showed that pets can positively contribute to factors commonly associated with ontological security, as pets can be considered the main sources of support for the long-term management of mental health conditions.

Research conducted by Friedmann & Son[10] has shown that pet owners had greater self-esteem, were more physically fit, tended to be less lonely, were more conscientious, tended to be less fearful and were more extroverted. Pets also have been a great source of comfort and company for individuals who have had to transition from bustling office spaces to their own quiet living rooms during the COVID-19 pandemic. Others may have still been able to go into the office for work but have otherwise kept themselves close to home.

Indication of the potential benefit that pets convey to the experience of mental health comes from evidence detailing the benefits of pet ownership in relation to stress reduction, improved quality of life, and pets as promoters of social and community interaction.[11-13] Recent work done by Power[14] has shed light on the relevance of pets in the social networks of people who have received a diagnosis of a severe and enduring mental health illness (e.g. Schizophrenia and Bipolar disorder) suggesting that pets can be considered alongside other human relationships. However, the evidence base for the benefit of pet ownership for those with diagnosable mental health conditions is fragmented and unclear.

Objectives

- To study the prevalence of depression, anxiety, stress, and anger among pet owners.
- To study the difference in the prevalence of depression, anxiety, stress, and anger among pet owners and non-owners.
- To study the relationship between depression, anxiety, stress and anger, and the number of family members and senior citizens in the family of the participants.

Hypotheses

- There will be a significant difference in the depression of pet owners and non-owners.
- There will be a significant difference in the anxiety of pet owners and non-owners.
- There will be a significant difference in the stress of pet owners and non-owners.
- There will be a significant difference in the anger of pet owners and non-owners.
- There will be a significant relationship between depression, anxiety, stress & anger, andthe number of family members & senior citizens in the family of the participants.

Materials and Methods

Study Design

A cross-sectional survey study was conducted using two widely used instruments to measure the quality of life and perceived stress level among adults in Delhi NCR, India during the COVID-19 pandemic. Adults who were aged 19 years or older were included in the study. Whereas, the adults who were diagnosed with major illnesses (mental or physical) were excluded from the study.

Study Instruments

Depression Anxiety Stress Scale-21 (DASS21): This DASS-21[15] is a short version (21

items) of a 42-item self-report instrument designed to measure three related negative emotional states: depression, anxiety, and stress.This test evaluates the severity of mental disorder symptoms associated with the three (depression, anxiety, and stress) and provides a mild, moderate or severe result. Each of the questions is rated from 0 to 3. Therefore, each state presents partial scores of 0 to 21.

Anger: Aggression Questionnaire[16] is a 29-item questionnaire in which participants rank certain statements along a 5-point continuum from "extremely uncharacteristic of me" to "extremely characteristic of me". The scores are normalized on a scale of 0 to 1, with 1 being the highest level of aggression. It measures four factors: physical aggression, verbal aggression, anger, and hostility. In this study, only the questions (7 items) related to anger were used.

Data Collection

Convenience sampling was used for collecting the data, in which participants were provided with a description of the study and its objectives and then were invited to participate voluntarily. Those

who agreed to participate were sent the questionnaires in Google form on their email or WhatsApp. A total of 185 adults participated in this study during the month of Jan–May 2021.

Statistical Analysis

Descriptive statistical analyses were performed to analyze thedata collected from the participants. Continuous variables werepresented in the form of the mean (±SD) and categorical variables werepresented as numbers (%). ANOVA test was used to compare the mean scores of the three groups.Pearson's correlation coefficient was used toquantify the relationship between the variables. A p-value less than 0.05 was considered statistically significant. Allstatistical analyses were performed using statistical software SPSS(version 20.0).

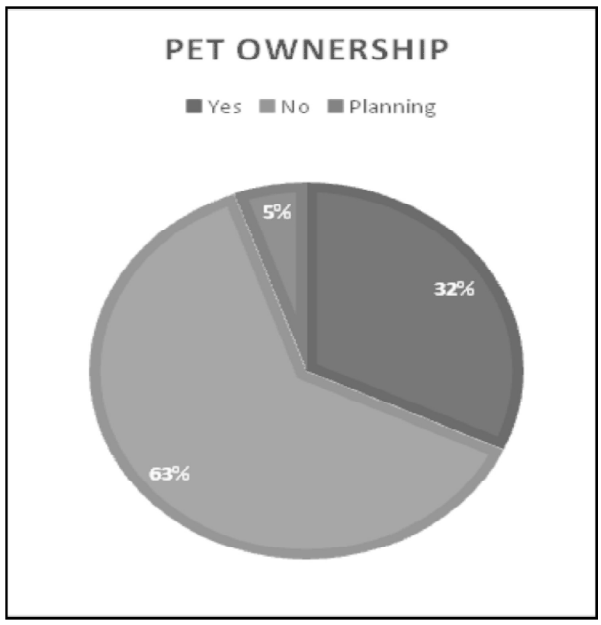
Results

The study was conducted on 185 adults from January 2021 to June 2021. Participants were recruited on a volunteer basis to participate in the study.

A summary of the demographic characteristics of the sample is presented in Table 1.

Most of the participants (n=102, 55.1%) were in age range of 21-29 years, and 23.8% (n=44), 11.9% (n=22), 4.9% (n=9), 2.7% (n=5) and 1.6% (n=3) participants were in age range of 30-39 years, 40-49 years, 18-20 years, 50-59 years, & 60+ years respectively. A greater proportion of the participants were female (72.4%, n=134) than male (27.6%, n=51). Participants were more likely to be single (51.9%, n=96) or married (45.4%, n=84), with 1.6% (n=3) and 1.1% (n=2) of the participants reporting they were divorced or separated, respectively. Further, 76.2% (n=141) of the participants reported that they were living in nuclear families, and 23.8% (n=44) were living in joint families. Majority of the participants (51.9%, n=96) were post-graduates, 38.9% (n=72) were graduates, 3.2% (n=6) were Ph.D. holders, 2.2% (n=4) were M.Phil., 2.2% (n=4) were educated only up to 12th class, and rest 1.6% (n=3) were diploma holders. A larger population in this study was not employed (42.2%, n=78), and 33.5% (n=62) were employed in private sector, 16.8%(n=31) were employed in public sector, and 7.6% (n=14) had their own business.

31.9% (n=59) of the participants were pet owners and 5.4% (n=10) were planning to get a pet. Whereas, 62.7% (n=116) of the participants did not have a pet. A greater portion of the pet owners reported that they had either dog or cat as a pet.



Pet ownership and senior citizens in the family: The analysis based on number of senior citizen in the family and pet ownership (Table 2)

Table-1: Demographic characteristics of the sample

		Frequency (N)	Percent (%)
Age	18-20 years	9	4.9
	21-29 years	102	55.1
	30-39 years	44	23.8
	40-49 years	22	11.9
	50-59 years	5	2.7
	60+ years	3	1.6
Gender	Female	134	72.4
	Male	51	27.6
Marital Status	Divorced	3	1.6
	Married	84	45.4
	Separated	2	1.1
	Single	96	51.9
Family Type	Nuclear	141	76.2
	Joint	44	23.8
No. of members in family	1-3	42	22.6
	4-6	118	63.8
	7-10	23	12.5
	>10	2	1.0
Senior Citizen in family	0	90	48.6
	1	50	27.0
	2	41	22.2
	3	1	.5
	4	3	1.6
Monthly family income	Rs 30000-50000	38	20.5
	Rs 51000-70000	34	18.4
	Rs 71000-100000	45	24.3
	Rs 100000-200000	39	21.1
	Rs 200000+	29	15.7
Educational Qualification	Diploma	3	1.6
	Graduation	72	38.9
	Intermediate	4	2.2
	M.Phil.	4	2.2
	Ph.D.	6	3.2
	Post-Graduation	96	51.9
Sector of employment	Business	14	7.6
	Not employed	78	42.2
	Private Sector	62	33.5
	Public Sector	31	16.8

Table 2: Cross tabulation of pet ownership and senior citizens in the family

Pet ownership		**Senior Citizens in the family**					**Total**
		0	**1**	**2**	**3**	**4**	
No	n	59	30	26	0	1	116
	%	50.9%	25.9%	22.4%	0.0%	0.9%	100.0%
Yes	n	28	17	12	1	1	59
	%	47.5%	28.8%	20.3%	1.7%	1.7%	100.0%
Planning	n	3	3	3	0	1	10
	%	30.0%	30.0%	30.0%	0.0%	10.0%	100.0%
Total	N	90	50	41	1	3	185
	%	48.6%	27.0%	22.2%	0.5%	1.6%	100.0%

Table-3: Cross tabulation of pet ownership and family type

Pet ownership		Family type		Total
		Nuclear	Joint	
No	n	89	27	116
	%	76.7%	23.3%	100.0%
Yes	n	43	16	59
	%	72.9%	27.1%	100.0%
Planning	n	9	1	10
	%	90.0%	10.0%	100.0%
Total	N	141	44	185
	%	76.2%	23.8%	100.0%

showed that 47.5% (n=28) of the pet owners (n=59) had no senior citizen in their family, and 28.8% (n=17), 20.3% (n=12), 1.7% (n=1), and 1.7% (n=1) of the pet owners were living with one, two, three, and four senior citizens, respectively. Further, the participants who had no senior citizen, one senior citizen or two senior citizens in their families were equally willing to get a pet in their families.

Pet ownership and family type

The analysis based on family type and pet ownership (Table 3) showed that 72.9% (n=43) of the pet owners live in nuclear families, and 27.1% (n=16) live in joint families. Further, among the participants who were planning to get a pet, 90% (n=9) were living in nuclear families and 10% (n=1) were living in joint family.

Depression

The mean score of the participants on the Depression scale (Table 4) was found to be 4.61 (SD=3.58), where the majority of the participants (89.7%, n=166) reported that they had a normal level of depression, 8.6% (n=16) had mild depression, and 1.6% (n=3) of the participants had a moderate level of depression.

The descriptive analysis of Depression based on pet ownership (Table 5) showed that the mean scores of the participants having no pet (n=116), having a pet (n=59), and who were planning to get a pet (n=10) were found to be 4.21 (SD=3.31), 5.10 (SD=3.81), and 6.30 (SD=4.64) respectively.

This indicates that the participants who were planning to get a pet had a higher level of depression than the pet owners and non-owners, respectively. However, the ANOVA test showed no significant difference ($F=2.43$, $p>0.05$) in depression level among the participants based on pet ownership.

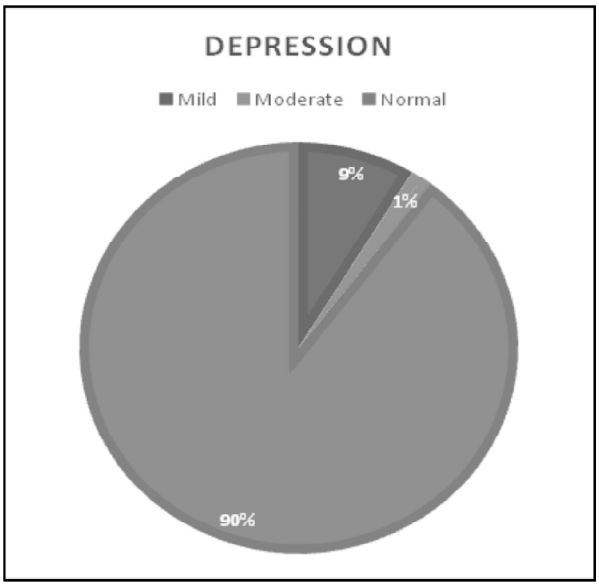
Anxiety

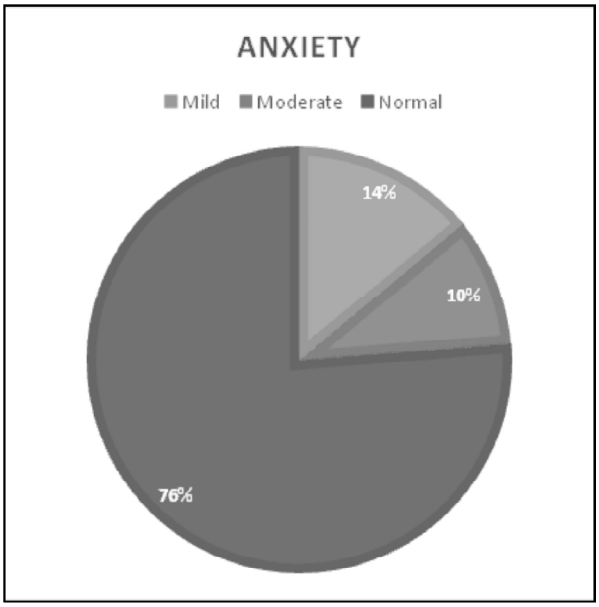
The mean score of the participants on Anxiety scale (Table 4) was found to be 4.75 (SD=3.51), where the majority of the participants (76.2%, n=141) reported that they had a normal level of anxiety, 14.1% (n=26) had mild anxiety, and 9.7% (n=18) of the participants had a moderate level of anxiety.

The descriptive analysis of Anxiety based on pet ownership (table 5) showed that the mean scores of the participants having no pet (n=116), having a pet (n=59), and who were planning to get a pet (n=10) were found to be 4.35 (SD=3.41), 5.49

Table 4: Frequency distribution and mean value of depression, anxiety, stress, and anger

Variables	Levels	Frequency	Percent	Mean	Std. Deviation
Depression	Mild	16	8.6	4.61	3.58
	Moderate	03	1.6		
	Normal	166	89.7		
Anxiety	Mild	26	14.1	4.75	3.51
	Moderate	18	9.7		
	Normal	141	76.2		
Stress	Normal	185	100.0	5.53	3.04
Anger	—	18.23	5.43		





(SD=3.72), and 4.90 (SD = 2.99) respectively.

This indicates that the pet owners had higher anxiety than the participants planning to get a pet and had no pet, respectively. However, the ANOVA test showed no significant difference ($F = 2.08$, $p > 0.05$) in the participants' anxiety based on pet ownership.

Stress

The participants' mean score on the Stress scale (Table 4) was found to be 5.53 (SD=3.04) where all the participants (100%) reported having normal stress levels.

The descriptive analysis of Stress based on pet ownership (Table 5) showed that the mean scores of the participants having no pet (n = 116), having a pet (n = 59), and who were planning to get a pet (n = 10) were found to be 5.23 (SD = 2.98), 6.00 (SD = 2.99), and 6.20 (SD = 3.85) respectively.

This indicates that the participants planning to get a pet had a comparatively higher level of stress than the pet owners and non-owners, respectively. However, the ANOVA test showed no significant difference ($F = 1.50$, $p > 0.05$) in the participants' stress level based on pet ownership.

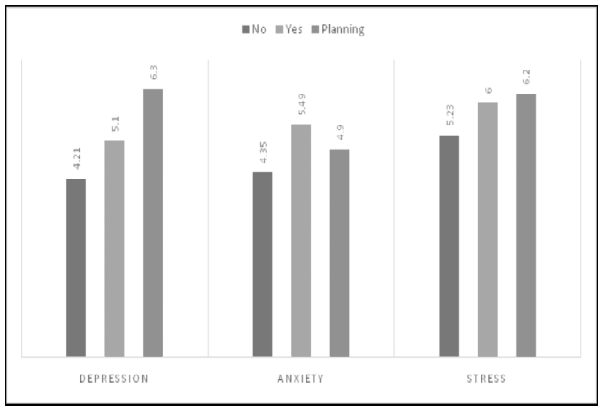
Anger

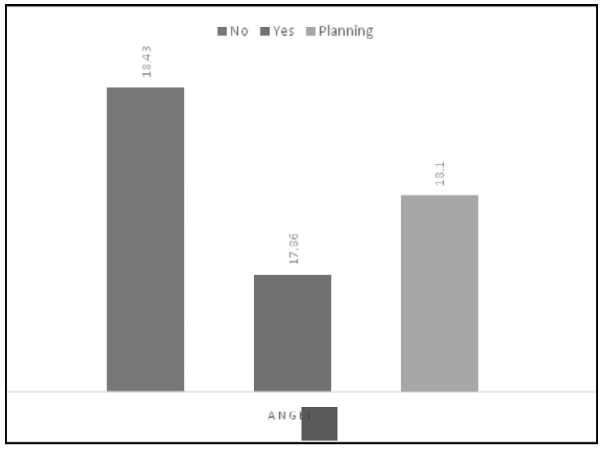
The participants' mean score on the Anger scale was 18.23 (SD = 5.43) – Table 4.

The descriptive analysis of Anger based on pet ownership (Table 5) showed that the mean scores of the participants having no pet (n = 116), having a pet (n = 59), and who were planning to get a pet (n = 10) were found to be 18.43 (SD = 5.41), 17.86 (SD = 5.34), and 18.10 (SD = 6.62) respectively.

Table 5: Descriptive analysis of depression, anxiety, stress, and anger based on pet ownership

		N	Mean	Std. Deviation	df	F	p
Depression	No	116	4.21	3.317	182	2.435	.090
	Yes	59	5.10	3.818			
	Planning	10	6.30	4.644			
Anxiety	No	116	4.35	3.414	182	2.083	.128
	Yes	59	5.49	3.720			
	Planning	10	4.90	2.998			
Stress	No	116	5.23	2.988	182	1.504	.225
	Yes	59	6.00	2.994			
	Planning	10	6.20	3.853			
Anger	No	116	18.43	5.417	182	0.214	.808
	Yes	59	17.86	5.348			
	Planning	10	18.10	6.624			





cipants based on the number of members in the family and the number of senior citizens in the family.

However, there was a weak negative relationship between depression and stress with number of members in the family members and a weak positive relationship between depression and anxiety with the number of senior citizens in the family. Similarly, there was a weak positive relationship between anxiety and anger with the number of members in the family and a weak positive relationship between anxiety and number of senior citizen in the family, and a weak negative relationship between anger and number of senior citizen in the family.

Discussion

The purpose of this study was to examine depression, anxiety, stress, and anger among adults who own a pet, who don't own a pet, and who are planning to get a pet. Self-administered questionnaires were given to 185 adults recruited on a volunteer basis to participate in the study. Most of the participants (55.1%) were in age range of 21-29 years, females (72.4%), single (51.9%), living in nuclear families (76.2%), post-graduates (51.9%), and 42.2% population in this study was not

Table-6: Pearson's correlation coefficient between the variables

	1	2	3	4	5	6
1. No. of members in present family	1	–	–	–	–	–
2. Senior Citizens in the family	.278**	1	–	–	–	–
3. Depression	–.019	.010	1	–	–	–
4. Anxiety	.049	.050	.572**	1	–	–
5. Stress	–.031	.000	.654**	.616**	1	–
6. Anger	.048	–.060	.342**	.222**	.357**	1

**. Correlation is significant at the 0.01 level (2-tailed).*. Correlation is significant at the 0.05 level (2-tailed).

This indicates that the participants who did not have a pet had a comparatively higher level of Anger than the participants who were planning to get a pet and pet owners, respectively; the pet owners had comparatively lesser anger than other participants. However, the ANOVA test showed no significant difference ($F = 0.21$, $p > 0.05$) in the anger level of the participants based on pet ownership.

Relationship between the variables

The Pearson's correlation coefficient (Table 6) showed that there was no significant difference in depression, anxiety, stress and anger of the participants based on the number of members in the family and the number of senior citizens in the family.

However, there was a weak negative relationship between depression and stress with number of members in the family members and a weak positive relationship between depression and anxiety with the number of senior citizens in the family. Similarly, there was a weak positive relationship between anxiety and anger with the number of members in the family and a weak positive relationship between anxiety and number of senior citizen in the family, and a weak negative relationship between anger and number of senior citizen in the family.

Discussion

The purpose of this study was to examine depression, anxiety, stress, and anger among adults who own a pet, who don't own a pet, and who are planning to get a pet. Self-administered questionnaires were given to 185 adults recruited on a volunteer basis to participate in the study. Most of the participants (55.1%) were in age range of 21-29 years, females (72.4%), single (51.9%), living in nuclear families (76.2%), post-graduates (51.9%), and 42.2% population in this study was not employed.

31.9% of the participants were pet owners and 5.4% were planning to get a pet. Whereas, 62.7% of the participants did not have a pet. A greater portion of the pet owners reported that they had either dog or cat as a pet.

The analysis based on number of senior citizen in the family and pet ownership showed that 47.5% of the pet owners had no senior citizen in their family, and 28.8%, 20.3%, 1.7%, and 1.7% of the pet owners were living with one, two, three, and four senior citezens, respectively. Further, the participants who had no senior citizen, one senior citizen or two

senior citizens in their families were equally willing to get a pet in their families. This shows that majority of the pet owners/willing participants had senior citizen(s) in their families.

The analysis based on family type and pet ownership showed that 72.9% of the pet owners live in nuclear families, and 27.1% live in joint families. Further, among the participants who were planning to get a pet, 90% were living in nuclear families and 10% were living in joint family. This clearly shows that living in nuclear family increases chances of owning a pet.

Depression

The mean score of the participants on the Depression scale was found to be 4.61 (SD = 3.58), where the majority of the participants (89.7%, n = 166) reported that they had a normal level of depression, 8.6% (n = 16) had mild depression, and 1.6% (n = 3) of the participants had a moderate level of depression.

The descriptive analysis of Depression based on pet ownership showed the participants who were planning to get a pet had a higher level of depression than the pet owners and non-owners, respectively.

The ANOVA test showed no significant difference ($F = 2.43$, $p > 0.05$) in depression level among the participants based on pet ownership.

Anxiety

The mean score of the participants on Anxiety scale was found to be 4.75 (SD = 3.51), where the majority of the participants (76.2%, n = 141) reported that they had a normal level of anxiety, 14.1% (n = 26) had mild anxiety, and 9.7% (n = 18) of the participants had a moderate level of anxiety.

The descriptive analysis of Anxiety based on pet ownership showed that the pet owners had higher anxiety than the participants planning to get a pet and had no pet, respectively.

The ANOVA test showed no significant difference ($F = 2.08$, $p > 0.05$) in the participants' anxiety based on pet ownership.

Stress

The participants' mean score on the Stress scale was found to be 5.53 (SD = 3.04) where all the participants (100%) reported having normal stress levels.

The descriptive analysis of Stress based on pet ownership showed that the participants planning to get a pet had a comparatively higher level of stress than the pet owners and non-owners, respectively.

The ANOVA test showed no significant difference ($F = 1.50$, $p > 0.05$) in the participants' stress level based on pet ownership**.**

Anger

The participants' mean score on the Anger scale was 18.23 (SD = 5.43). The descriptive analysis of Anger based on pet ownership showed that the participants who did not have a pet had a comparatively higher level of Anger than the participants who were planning to get a pet and pet owners, respectively; the pet owners had comparatively lesser anger than other participants.

The ANOVA test showed no significant difference ($F = 0.21$, $p > 0.05$) in the anger level of the participants based on pet ownership.

Relationship between the variables

The Pearson's correlation coefficient showed that there was no significant difference in depression, anxiety, stress and anger of the participants based on the number of members in the family and the number of senior citizens in the family. However, there was a weak negative relationship between depression and stress with number of members in the family members and a weak positive relationship between depression and anxiety with the number of senior citizens in the family. Similarly, there was a weak positive relationship between anxiety & anger with the number of members in the family and a weak positive relationship between anxiety and number of senior citizen in the family, and a weak negative relationship between anger and number of senior citizen in the family.

Conclusion

Majority of the participants who had senior citizen(s) in their families were having a pet or were planning to get one in the near future. The study also revealed that majority of the participants who had a pet or planning to get one were living in nuclear families. The ANOVA test showed that there was no significant difference in depression ($F = 2.43$, $p > 0.05$), anxiety ($F = 2.08$, $p > 0.05$), stress ($F = 1.50$, $p > 0.05$), and anger ($F = 0.21$, $p > 0.05$) of

the participants based on pet ownership. The Pearson's correlation coefficient showed that there was no significant difference in depression, anxiety, stress and anger of the participants based on the number of members in the family and the number of senior citizens in the family.

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Original Article

To Assess the Overall Health Related Quality of Life (QoL), Disability, Clinical Correlates in Obsessive Compulsive Disorder

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ABSTRACT

Background*: Obsessive-Compulsive Disorder (OCD) is a debilitating disorder that has moved in recent classification of DSM-5 from the anxiety disorders category to the obsessive-compulsive and related disorders group. The high co-morbidity of Obsessive-Compulsive Disorder (OCD) with other psychiatric disorders also leads to a significant worsening of quality of life, and has further consequences in the social and work spheres of the patient's life.* ***Aims:*** *The present study aims to address this issue that has impacted in all the spheres of the individual's life.* ***Methodology:*** *A cross sectional hospital based study OCD patients visiting Psychiatric Outpatient Department (OPD) of a tertiary care, teaching hospital was carried out after giving informed consent. Thirty OCD patients suffering for more than 2 years , either receiving treatment or on non pharmacological intervention were administered Quality of life (WHOQOL BREF) instrument, disability (WHO DAS 2.0) and obsession and compulsion belief range (OBQ 44), disease severity (Y-BOCS), anxiety and depression assessment(HADS). SPSS version 23 was used for analysis of the data.* ***Results:*** *The mean age of the sample is 36.97 years. On analyzing the obsessional score, compulsion score and total score on Y-BOC, it was observed that compulsion score is in direct proportion to obsession score in almost all the patients. It was found that 7 patients(23.33%) have severe problem with responsibility and threat estimation; 8 patients (26.66%) have severe problems with Importance/control of thought and 5 patients (16.66%) have severe perfectionism/ certainty problems. The no of patients with mild disability is 9 (30%); with moderate disability is 16 (53.33%); and with severe disability is 5 (16.66%). Quality of life of the patients as obtained by the WHO QoL scale suggests that there has been marked derangement in the quality of life of the OCD patients. Correlation of the obsessive compulsive score with that of quality of life showed inverse relation which lead to the conclusion that obsession and compulsion in the OCD patients degrades their Quality of Life.* ***Conclusion****: It has been clearly depicted that the increase in the obsessive compulsive score leads to decrease in WHO QoL scoring and increase in WHO DAS scoring. So, with the increase in the OCD symptoms, the quality of life degrades and the disability of the patient as described in different fields above increases. The main focus of this research was to improve the quality of life of the OCD patients and provide them with disability benefits. Also, such kind of work put light to take appropriate steps to improve overall mental health of the patients by providing them with appropriate early timely interventions.*

Key words: *Obsessive Compulsive Disorder, Quality of Life, Disability, Clinical correlates.*

Introduction

Obsessive compulsive disorder is the fourth most prevalent psychiatric disorder, with a high co-morbidity with other anxiety and mood disorders.[1-3]

Obsessive-Compulsive Disorder (OCD) is a debilitating disorder characterized by two distinct phenomena: obsessions, which are recurrent and persistent intrusive thoughts, images, or urges (e.g., pertaining to contamination, order/symmetry etc) that in most individuals cause marked anxiety or distress; and/or compulsions, which are repetitive covert or overt actions that are carried out to suppress or neutralize these distressing thoughts, images or urges (e.g., checking, washing, or counting etc).[4]

More than 90% of patients with Obsessive-Compulsive Disorder (OCD) have both obsessions and compulsions, although 30% suffer predominantly from obsessions and 20% predominantly with compulsions.[5]

The most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* has moved Obsessive-Compulsive Disorder (OCD) from the anxiety disorders category to the obsessive-compulsive and related disorders group[6] A diagnosis of Obsessive-Compulsive Disorder (OCD) implies that the obsessions and compulsions are time-consuming, e.g., take more than an hour a day and interfere significantly with daily, occupational, or social functioning.

Obsessive-Compulsive Disorder (OCD) may not be an extremely prevalent disorder,[7] but it has high clinical relevance. Its importance lies in the fact that the disorder has a significant impact on the patient's life and daily activities. This disorder mainly affects young adults, who have a potentially high level of activity in all the spheres of life. The high comorbidity of Obsessive-Compulsive Disorder (OCD) with other psychiatric disorders[2,5] also leads to a significant worsening of quality of life, and has further consequences in the social and work spheres of the patient's life.

There is scanty literature on disability assessment, quality of life, clinical correlates in Obsessive Compulsive Disorder (OCD) patients. The present study aims to address this patient problem as Obsessive Compulsive Disorder has impact in all the spheres of the individual's life.

Until 1980, Obsessive Compulsive Disorder was thought to be rare. However, after the ECA study a lifetime prevalence ranging from 1.94% to 3.2% was found.[2] It is a severely incapacitating mental illness that causes profound impairment in psychosocial functioning and quality of life.

In the last decade, there is a growing interest in clinicians and researchers for this disorder. There has also been considerable growth in the treatment literature on childhood and adolescent obsessive compulsive disorder, and this is of particular significance as current estimates of the onset of OCD in childhood and adolescence are as high as 80%.[3,6,7]

The most recent edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* has moved Obsessive-Compulsive Disorder (OCD) from the anxiety disorders category to the obsessive-compulsive and related disorders group[6] A diagnosis of Obsessive-Compulsive Disorder (OCD) implies that the obsessions and compulsions are time-consuming, e.g., take more than an hour a day and interfere significantly with daily, occupational, or social functioning.

In 2001, the task force rehabilitation committee of the Indian psychiatry society (IPS) developed IDEAS for evaluation of disability associated disorder (like OCD).[8] It helps to provide certification to the OCD patients under the provision of person with disability act, 1995.[9] So, disability benefits can be provided to the OCD patients through this certification.

The objective of this research was to present an overview of the Patient Reported Outcomes (PROs) and their related measures in content of OCD. The tools used to report patient outcome are YBOCS, OBQ, WHO-DAS, WHO-QOL. The main aim of this research is to improve the quality of life of the OCD patients. This will help authorities to take steps to improve overall mental health and physical health of these patients and modulate mental health and physical health initiatives for the group. It will also highlight the need of psychiatrist at hospital level to check the patients both mental as well as physical health status and factors they should stress upon while helping OCD patients.

Objective

The main purpose of the work is to assess the overall quality of life, disability and clinical

correlates in the Obsessive Compulsive Disorder (OCD) patients

Methodology

Study design

This was a self reported questionnaire based study, psychiatric diagnosis was made by clinical psychiatrist using Structured Clinical Interview For DSM-5 Disorder (SCID-5-RV).[10]

Type of Study and Study Population

This was a cross sectional hospital based study in Obsessive Compulsive Disorder(OCD) patients visiting Psychiatric Outpatient Department (OPD) of a tertiary care hospital.

Duration of study

The study was carried out within two months time, in the period sum April 2016 to August 2016.

Study group (inclusion and exclusion criteria)

Thirty OCD patients suffering for more than 2 years who gave their consent were recruited.

Inclusion criteria

1) All OCD patients suffering for more than 2 year, either receiving treatment or on non-pharmacological intervention.
2) Patient who gave will informed consent to undergoing this procedure.

Exclusion criteria

1) Any unstable medical/psychiatric patient (for e.g. violent, suicidal, self-harm).
2) All OCD patients who did not give consent and were not willing to participate

Sampling technique

The subjects were recruited using non-probability based consecutive sampling technique.

Sample size

Thirty patients of OCD coming to the psychiatric outpatients department were included for the purpose of the study.

Study technique (Procedure and tools)

OCD patients were contacted in their respective Out Patient Department after taking due permission from the ethical committee. A written informed consent from the patient was obtained after explaining them with an information sheet explaining the intention of the study in Hindi and/or English as outlined in the patient information sheet.

The self reported questionnaires was administered. Questionnaire for Quality of life (WHOQOL BREF) assessments, disability (WHO DAS 2.0), assessment and obsession and compulsion range (OBQ 44, Y-BOCS), anxiety and depression assessment (HADS) were administered.

Instruments used

Quality of Life Instrument (WHO QoL - BREF)

Its structured self report interview it was developed by WHO division of mental health. It consists of 26 items. Its purpose is to assess quality of life of person. It assesses patients under four domains which are physical, psychological, social and environmental.[11]

Disability Instrument (WHO DAS 2.0)

It is structured self report interview was developed by WHO division of mental health about difficulties due to health condition. Health condition include diseases or illness, other health problems that may be short or long lasting, injuries, mental or emotional problems, and problems with alcohol or drugs It consists of 36 items.

Obsessive Beliefs Questionnaire(OBQ) 44

It was developed by Obsessive Compulsive Cognitions Working Group to measure beliefs considered important in the development of OCD with the help of questionnaire.

Yale Brown Obsessive Compulsive Scale (Y BOCS)

It is a semi structured interview designed to rate the severity and type of symptoms in patients with obsessive compulsive disorder. It consists of 19 items. All the 19 items are rated but the score is calculated using items 1-10 (excluding 1b and 6b).[12]

Hospital Anxiety and Depression scale (HADS)

It is a self report questionnaire to assess anxiety and depression. It has 2 subscales: anxiety and depression, both with 7 items.

All consecutive OCD patients were recruited and then, assessed by the psychiatrist using the

psychiatric history taking Performa and treatment was done as per the latest DSM5 SCID RV[6] study. The patients were informed that their identity would be kept confidential for the purpose of the study.

All patients were read out the patient information sheet and Informed consent was duly obtained before interviewing the patients. The questionnaire was offered to all adult patients aged 18-45 years visiting psychiatric outpatient department in August-September of 2016.

The literate patients were given the questionnaire and sent to a separate room. The patients were left alone with the questionnaire for 5 to 10 minutes; they were offered assistance in completing the questionnaire if needed. The questionnaire was read out to the illiterate patients and the responses which they marked on a separate sheet. However, after the questionnaire was completed, patients were encouraged to share any concerns about personal problems. The protocol for this study has been approved by the institutional review boards of the participating hospital.

We defined obsessions as recurrent and persistent intrusive thoughts, images, or urges (e.g., pertaining to contamination, order/symmetry etc) that in most individuals cause marked anxiety or distress.[4]

The compulsions were defined as repetitive covert or overt actions that are carried out to suppress or neutralize these distressing thoughts, images or urges (e.g., checking, washing, or counting etc.).[4]

These symptoms (obsession; compulsion) of OCD had been scored under the Yale Brown Obsessive Compulsive Scale (YBOCS) and OBQ 44 (Obsessional Belief Questionnaire)

The associated disability with the Obsession and compulsions were measured with the help of WHO DAS 2.0 (Disability Assessment Schedule) and the Quality of life of the consecutive patients were measured through WHO QoL.

Statistical Analysis

SPSS version 23 was used for analysis of the data.

Our first set of analyses looked at relationship between Obsession and Compulsion score as obtained by the YBOCS.

Our second set of analysis explored the correlation of the quality of life and disability (which patients face) with that of the obsession and compulsion. The correlation was explored as per the scoring of YBOCS, OBQ44, WHODAS and WHOQOL.

The duration of treatment, socio demographic data were entered and an attempt was made for any possible correlation.

Results

30 OCD patients (18 females,12 males) were analyzed in total of age group ranging from 21 years-58 years. The demographic details are given in Table 1.

Table-1. Sociodemographic Variables

Demographic Variable	N (%)
Sex	
Males	18(60%)
Females	12(40%)
Religion	
Hindu	24(80%)
Muslim	4(13.33%)
Sikh	2(6.66%)
Others	0(0%)
Marital Status	
Married	23(76.66%)
Unmarried	7(23.33%)

Table-2. The mean and SD of all demographic variables

Variable	Mean	S.D.
a) Age	36.97	9.510
b) Duration of treatment	6.38	5.025
c) Age of onset	30.17	8.587

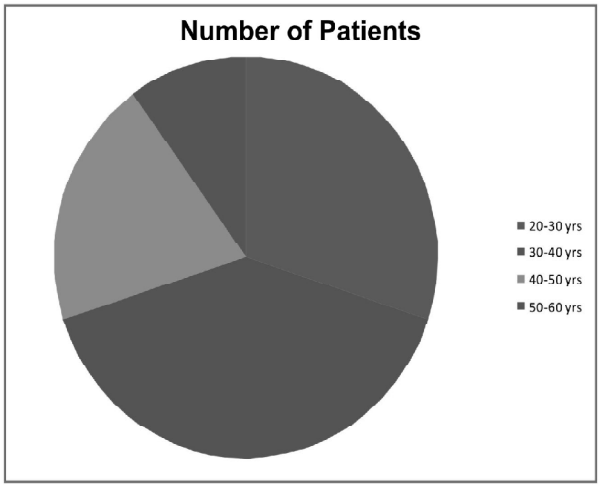

Fig. 1.

The age of the patients ranges from 21 years to 58 years. Amongst the 30 OCD patients, 12 (40%) belong to age group 30-40, 9 (30%) belongs to age group 20-30, 6(20%) belongs to age group 40-50 and 3 (10%) belongs to age group 50-60.

Assessment of Obsession with Compulsion Score in OCD Patients (as per YBOCS)

On analyzing the obsessional score, compulsion score and total score as obtained by the yale brown obsessive compulsive score of the 30 patients, it was observed that compulsion score is in direct proportion to obsession score in almost all the patients.

	Minimum	Maximum	Mean	Stand. deviation
Obsessional score	5	24	12.20	25.959
Compulsion score	6	24	11.63	26.723
Total score	11	48	23.83	10.181

The obsessional score ranges from a minimum of 5 to a maximum of 24 while the compulsion score ranges from a minimum of 6 to a maximum of 24. The mean obsession score is 12.20 while the mean compulsion score is 11.63.

On analyzing the obsession compulsion score of the 30 OCD patients , it was observed that 13(43.33%) of the patients have scoring between 15-25; 7(23.33) of the patients have scoring less than 15 (i.e. they have mild OCD symptoms) and 10 patients (33.33) have scoring more than 25 (i.e. they have extreme OCD symptoms)

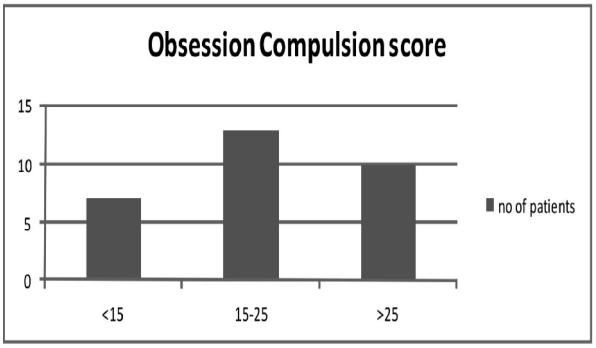

Fig. 2

Assessment of the parameters of OBQ 44 (Obsessional Belief Questionnaire)

OBQ44 consists of three parameters i.e. Responsibility/threat estimation (RT), Perfectionism/ certainty (PC), Importance/control of thoughts (ICT) through which the symptoms of the OCD patients are assessed

On assessing the 30 consecutive OCD patients, it was found that 7 patients (23.33%) have severe problem with responsibility and threat estimation (scoring more than 55); 8 patients (26.66) have severe problems with Importance/control of thought (scoring more than 40) and 5 patients(16.66) have severe perfectionism/ certainty problems (scoring more than 55).

Assessment of Disability in OCD patients through WHO-DAS 2.0

The disability as measured with the help of

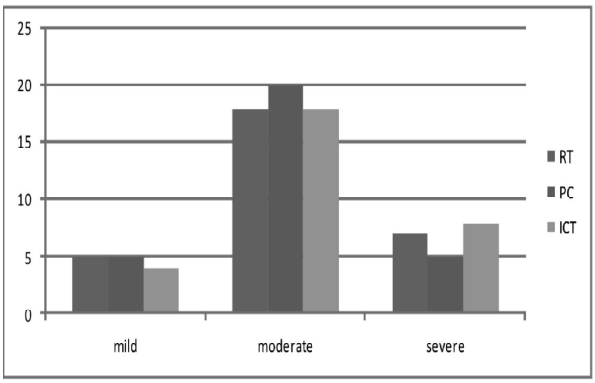

Fig. 3

WHO-DAS 2.0 includes different domains for assessment of cognition, mobility, self care, getting along, life activities and participation.

The minimum overall disability score obtained was 4 and maximum was 65. Mean disability score is 34.60 and standard deviation is 14.845.

The no of patients with mild disability is 9 (30%); with moderate disability is 16 (53.33%); and with severe disability is 5 (16.66%).

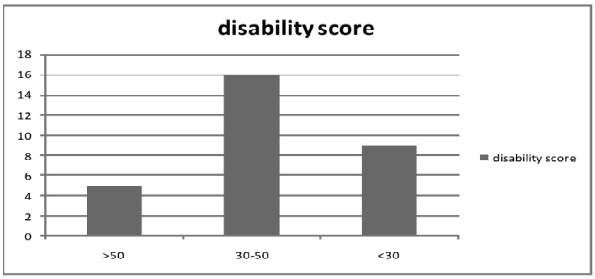

Fig. 4

	Maximum	Minimum	Mean	Stand. deviation
RT score	71	21	47.20	12.947
PC score	64	21	45.00	11.948
ICT score	54	15	34.60	9.814
Total score	189	60	126.80	33.997

	Minimum	Maximum	Mean	Stand deviation
D1	38	69	53.93	9.479
D2	19	81	49.67	15.542
D3	25	75	54.60	15.509
D4	31	75	57.73	11.939

Assessment of Quality of Life in OCD patients

Quality of life of OCD patients have been assessed with the help of the WHO-QOL Questionnaire. Different domains of the WHO QOL scale have been assessed in order to rate the quality of life. Different domains check the physical, psychological, social and environmental heath of the individual. The score in each domain is out of 100.

Discussion

After the calculation of all the data obtained from the 30 OCD patients, it was observed that the basic two symptoms of the Obsessive Compulsive Disorder – Obsession and Compulsion leads to high derangement in the quality of life and also leads to various kinds of disability.

Disability in the OCD patients as covered by the WHO DAS 2.0 scale was in cognition (understanding and communicating); mobility(moving and getting around); self care(hygiene, dressing, eating and staying alone); getting along (interacting with other people); life activities (domestic responsibilities, leisure, work and school) and participation (joining in community activities).

As shown in Figure 4 mild disability is present in 30% moderate disability is present in 53.33% and severe disability in 16.66% of the patients.

A significant co-relation between the disability score obtained through WHO DAS and the Obsessive Compulsive score obtained from YBOCS has been shown. With the increase in the obsession and compulsion, the disability of the person also increases.

Quality of life of the patients as obtained by the WHO QOL scale suggests that there has been marked derangement in the quality of life of the OCD patients. Correlation of the obsessive compulsive score with that of quality of life showed inverse relation which lead to the conclusion that obsession and compulsion in the OCD patients degrades their Quality of Life.

The hypothesis we thought in this study are to be found more relating and consistent with this results. It is more in the favor of previous studies in this field but none of the previous studies relates obsession and compulsion symptoms with quality of life and disability in the same OCD patients. Our studies show correlation between them also. It has been clearly depicted that the increase in the obsessive compulsive score leads to decrease in WHO QoL scoring and increase in WHO DAS scoring. So, with the increase in the OCD symptoms, the quality of life degrades and the disability of the patient as described in different fields above increases.

The new avenue in this study is to relate more parameters that determine the relation between obsession - compulsion with that of quality of life and disability so that future study can be so narrow towards its hypothesis.

Conclusion

It can be concluded that the present study is a completed study and encompasses majority of the shortcomings of the previous study. It has the following merits:

1) It is a statistically sound study with utilization of standardized questionnaire and evaluation done using standardized tests.
2) Patients who were assessed were psychologically stable and hence could self-administer the questionnaire thus eliminating observer bias.
3) Regular care, psychiatric counselling and

treatment was given free of cost to all the participants whenever required.

4) Different forms of problems (disability, threat estimation, problems in controlling thoughts) were analyzed and correlates of the various parameters with obsession and compulsion were found.

Limitations of the study

1) Sample size was too small which leads to bias.
2) Correlations of gender, marital status, religion and other parameters could not be found.

Finally it can be concluded that OCD not only leads to the Obsession and Compulsion but it also creates a lot of problems in patient's life. With increase in obsession and compulsion patients develop problems in control of thoughts, perfectionism and also develop disability in various fields of life.

All this leads to severe derangement in the quality of life of the OCD patients. Health in each and every domain of the quality of life (physical, psychological, social and environmental) is degraded.

Acknowledgements

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Psychomicrobiology

Long Covid - Neuropsychiatric Aspects

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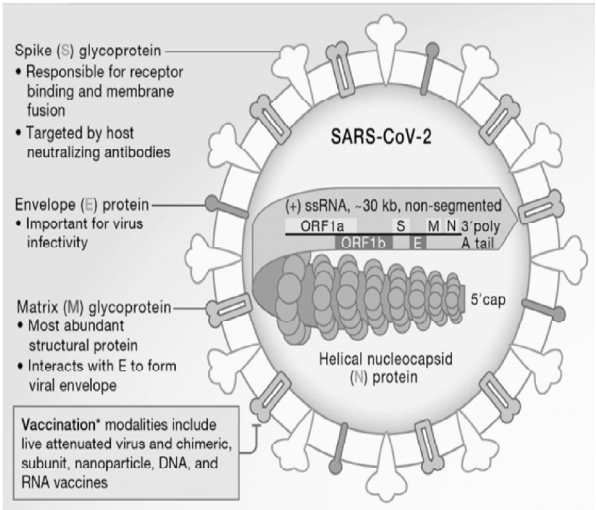
Introduction

The medical havoc created by coronavirus (SARS-CoV-2) has grown exponentially within a short span of time, since December 2019. The most common symptoms are fever, non-productive cough, fatigue, anorexia, myalgia and diarrhoea but pulmonary, renal, gastrointestinal and hematological complications have also been reported in severe cases hence, the involvement of the nervous system does not come as a surprise,[1,2] though the nature and extent of persistent neuropsychiatric symptoms after COVID-19 are not established yet.[1] According to the latest WHO reports dated November 2022, globally, there have been 640,395,651 confirmed cases of COVID-19, which included 6,618,579 deaths.[3]

Etiological Agent

Coronavirus belongs to a family of enveloped, positive-stranded RNA viruses. They are further classified into four different genera, namely Alpha, Beta, Gamma and Delta coronaviruses. Their non-segmented 30 kb positive, single-stranded polyadenylated RNA, the largest among RNA viruses, possesses four or five genes encoding structural proteins (S, E, M, N and hemagglutinin-esterase for the genus beta coronaviruses) and several genes encoding non-structural proteins, all of which play well-defined roles in determining the pathogenicity of the virus. The spike protein (S) is a type-1 glycosylated transmembrane protein, which helps in recognising the host cell receptor, thus enabling the virus to infect a susceptible cell. The envelope (E) protein, the membrane (M) protein and the nucleocapsid (N) protein are responsible for maintaining the shape and structure of the virion. SARS-CoV-2 may gain entry to the nervous system predominantly by two routes: hematogenous or neuronal transmission.[2]



Structure of SARS- CoV- 2

Pathophysiology

Early in the COVID-19 pandemic, neuropsychiatric symptoms were identified as a prominent feature of coronavirus outbreak.[1,2] The diverse types of neuropsychiatric symptoms associated with covid infection ranged from some nonspecific symptoms such as fatigue and headache to the more specific psychiatric morbidity such as depression, anxiety, post-traumatic stress fatigue, cognitive dysfunction and sleep disorders,[1,2] with increased rates of newly diagnosed mood or anxiety disorders and dementia all noted in the acute as well as in the post-viral

infectious period with persistence of neurocognitive deficits lasting up to 18 months post-discharge. There have also been reports of worsening of pre-existing psychiatric conditions namely mood and bipolar disorders, especially in the vulnerable populations. In the acute phase, apart from being the psychosocial stressor, COVID-19 has been reported to cause neuropsychiatric manifestations, like encephalopathy, psychosis, insomnia and mood changes.[4]

These neuropsychiatric manifestations have been attributed not only to the viral infection per se but also secondary to the host immune response. Though the pathophysiologic mechanisms are unclear but could be secondary to breached blood-brain barrier and involvement of the brain stem as well as elevated inflammatory markers.

The direct viral infiltration of the central nervous system is found to trigger a neuro-inflammatory reaction leading to microglial activation, which in turn triggers demyelinating processes and is one of the primary etiologies for encephalopathy. In cases where direct viral infiltration is absent, peripheral hypercytokinaemia leading to an imbalance of neuro-transmitters within the central nervous system is found to be responsible for neuropsychiatric manifestations. Hypercytokinaemia triggers a neuro-inflammatory response causing disruption of the blood-brain barrier that leads to peripheral immune cell transmigration into the central nervous system which in turn, causes imbalance in the neurotransmission. Headache, a common presentation in patients with mild-to-moderate disease was partly believed to be secondary to raised inflammatory mediators in the body and decreased cerebral blood flow due to hypoxia and endothelial changes as a result of viremia. Seizures were also randomly reported and were hypothesized to be secondary to decreased seizure threshold due to an innate immune response from cytokine surge rather than viruses itself primarily causing the seizures.[4] Tissue hypoxia, desaturation, neuro-inflammatory cytokines (regulating the 'cytokine storm' of SARS-CoV-2) and use of hydroxychloroquine has been associated with prolonged delirium in these patients. The effective management of sleep disturbance and early correction of sensorium are reported to be vital in post intensive care syndrome (PICS) and in decreasing the morbidity.[2-5]

Long COVID - Definition and Neuropsychiatric Symptomatology

There is also increasing evidence to indicate that a number of patients may experience new, recurring or ongoing symptoms, as well as clinical signs, that persist beyond the acute illness; a condition that is colloquially referred to as '*long COVID'*. Long COVID is defined by National Institute for Health and Care Excellence (NICE) as symptoms that continue to develop after acute COVID-19.[6]

Healthcare professionals may refer to long COVID as:

- ongoing symptomatic COVID-19 (4 to 12 weeks)
- post-COVID-19 syndrome (over 12 weeks)

The research shows that long COVID may be due to activation of SARS-Cov-2 particles causing reappearance of symptoms. Overactive immune cells may release high levels of inflammatory substances that can injure organs and tissues. The most common symptoms of long COVID are extreme tiredness (fatigue), shortness of breath and loss of smell.[7] Symptoms can include respiratory, neurological, psychological and cardiac. Patients affected by 'long COVID' include also those who initially had mild or asymptomatic disease, pointing to residual effects that involve multiple organ systems, including the peripheral and central nervous system (CNS). The indirect effects of COVID-19, such as social isolation and feeling of loneliness, uncertainty of the prognosis or incomplete physical health recovery, changes in sleep and lifestyle behaviour and the economic burden may also affect the manifestation of neuropsychiatric symptoms. The systematic research of neuropsychiatric manifesta-tions in patients beyond the resolution of acute COVID-19 is thus crucial in order to broaden the current understanding regarding the sequelae experienced by COVID-19 survivors and may facilitate the development of targeted evidence-based approaches towards an integrated patient care.[8-10]

While the most common neuropsychiatric manifestations seen in healthcare workers and survivors of SARS-CoV infection were post-traumatic stress disorder, panic attacks and anxiety which were largely attributed to mental trauma and not as a direct consequence of the infection. In addition, over-reactive behaviour due to the very fear of the disease itself was usually noted in the public during the

pandemic.[1] The other neuropsychiatric symptoms associated with covid were hallucination, sleep disturbance, '*brain fog*', dizziness, vertigo and changes in speech or language.[11] It's not known whether vaccines have any effect on the ongoing symptoms of coronavirus.

Conclusion

Persistence of neuropsychiatric symptoms are common and persistent even after recovery from COVID 19. Insomnia and fatigue are the predominant symptoms that appear to affect roughly one-quarter of the survivors. Cognitive impairment, anxiety, post-traumatic symptoms and depression are also common in the first 6 months but there is little evidence that these persisting symptoms relate to the severity of, or duration since, initial infection. With the exception of anxiety which was reported more frequently in non-hospitalised patients there was no evidence of the preponderance of a particular neuropsychiatric symptoms in admitted versus non admitted patients. Although more research is needed, but the presence of neuropsychiatric symptoms among COVID-19 survivors should not be overlooked because the neuropsychiatric symptoms arising out of the viral infection can add significantly to the health burden and quality of life. Hence, the use of multidisciplinary services resourced accordingly in the post-COVID era is an important factor that has to be kept in mind while dealing with patients not only during the covid but also during the post covid recovery phase.[4]

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Psychophysiotherapy

Role of Physical Therapy in Preventing Postpartum Depression and Anxiety

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Poor mental health during the perinatal period has the potential to cause lasting harm not only to the mother, but also to the well-being and development of the unborn child.[1-3] Postpartum Depression (PPD) is one of the three major post-partum psychiatric disorders, the other two being Postpartum psychosis and Postpartum blues[4,5] with global prevalence of 0.1 to 0.15 and highest economic burden and adverse consequences among all three.[6] Post natal anxiety disorders, in both presence and absence of postnatal depression have been reported in many studies.[7] Literature suggests that between 10 and 20 percent of women develops mental illness within the postnatal period[8] and nearly 20% all new mothers experiences an episode of major or minor depression within the first three months of postpartum period[9] which makes this the most common complication of childbearing far above both gestational diabetes (3-8%)[10] and preterm birth (12.3%).[11] It has been reported that 9% of postnatal maternal mortality is caused by mental health disorders.[8] Post partum anxiety often occurs with depression.[12]

The postpartum period begins an hour following the birth of the fetus and expulsion of the placenta and reflects the approximate time required for uterine involution and return of most maternal body systems to a non-pregnant state. Post-partum period is divided into the early postpartum period, the first three weeks after childbirth, and the late postpartum period, four to six weeks after childbirth.[13] PPD typically develops within 4 to 6 weeks after delivery or as acontinuum of prenatal depression.

Multiple factors including both biological and psychological risks factors contribute to the development of PPD. Main biological risk factors include physical and hormonal changes resulting from pregnancy especially increased weight, altered levels of oxytocin and inflammatory markers.[14,15] Researchers are only at the beginning stages of discovering biological factors that may contribute to the etiology of postpartum anxiety and depression, but there are numerous known psychological and social risk factors like lower social class, life stressors during pregnancy, complicated pregnancy/ birth, difficult relationship with family or partner, lack of support from family or friends, prior history of psychopathology (depression, anxiety), chronic stressors postpartum like problems with child care , unemployment/instability, unplanned pregnancy, poor relationship with own mother, history of sexual abuse, lack of a confidante, bottle feeding, depression during pregnancy, with the last generally acknowledged to be the strongest predictor of PPD.[16,17]

Pathophysiology

Postpartum Depression is thought to evolve from neuroendocrine changes, such as pregnancy stress, and personality predisposition, as well as a combination of many other factors.[18] The hypothalamic-pituitary-adrenal (HPA) axis, which mediates the body's neuroendocrine response to stress, is tightly controlled by GABAergic signaling which plays a critical role in the neurobiological effects of stress, not only by tightly controlling the activity of the HPA axis, but also mediating stress effects in stress-related brain regions. Deficits in neuroactive steroids and neurosteroids, some of which are positive allosteric modulators of GABA,

have also been implicated in PPD, further supporting a role for GABAergic signaling in depression. Alterations in neurosteroid levels and GABAergic signaling are implicated as potential contributing factors to neuroendocrine dysfunction and vulnerability to PPD.[19]

Consequences

Studies have clearly documented the negative health consequences of postnatal depression for women and their families. Postpartum Depression and Anxiety can be linked to mental symptoms like sadness, irritability, worrying and crying more than usual for no reason, feeling of worthlessness, exhaustion, insomnia or oversleeping, inability to cope up with her situation along with a sense of futility and hopelessness, loss of interest in activities that are usually enjoyable, loss of libido,[20] physical aches and pains including frequent headaches, stomach problems, and muscle pain, eating disorders, withdrawing from friends and family, difficulty bonding with the baby, persistently doubting her ability to care for her baby, thoughts of self harm and/or harming the baby etc. Frequently exacerbating these symptoms are low self-esteem, lack of confidence, and unrealistic expectations of motherhood.[20] Infants and children are particularly vulnerable because of impaired maternal-infant interactions[21] and negative perceptions of infant behaviour,[22] which have been linked to attachment insecurity,[23-24] delay in emotional developmental,[25,26] and social and interaction difficulties. Child neglect or abuse[27] and maternal and infant mortality are also rare but real consequences.

Women who have PPD are twice as likely to experience subsequent episodes of depression in later life.[28] PPD can cause impaired maternal-infant interactions and negative perceptions of infant behavior.[24] Marital difficulties are not uncommon and the partner may also become depressed.[29] Suicide is a rare but devastating consequence of PPD.

Preventions and Interventions

Childbirth can trigger a jumble of powerful emotions, from pleasure and joy to fear and anxiety. Eventually they may interfere with ability to take care of their babies and handle other daily tasks. PPD affects the mother and her relationship with the infant. Maternal brain response and behavior are also compromised in PPD. Beck in 2006 reported that more than half of PPD go undiagnosed because of conflict in privacy and not wanting to disclose to close family members.[30] There is also a stigma that disclosure may lead to abandonment and fear of lack of support. Effective treatment and preventive measures help to solve these problems.

Many women feel that depression in postpartum period is shameful, and others are influenced by society's general stigma concerning mental health care. In addition, women often hesitate to take psychotropic medications when breastfeeding, despite substantial evidence of their relative safety.[31] As poor maternal mental health is associated with poor outcomes for both mother and child, prevention of the development of poor mental health is the most effective way to reduce this burden. Because of its well–characterized psychological risk factors, and the substantial barriers to care once women become ill, a focus on the prevention of PPD holds tremendous potential for clinical efficacy. Identification of effective treatment components and identification of treatment gaps is of utmost importance in PPD prevention. Postpartum depression is significantly undertreated. Prospective mothers should be motivated for self-care and should stay in frequent contact with health care providers.

Researchers have demonstrated that Interventions for PPD include Pharmacologic interventions, Supportive Interpersonal Therapy, Cognitive Behavioural therapy, Psychosocial support through support groups, and Complementary therapies like Electro convulsant therapy. It has been proved that these therapies are effective for prevention and treatment of mothers with severe PPD.[32] Preliminary research indicates that Physical activity (PA) or exercise may have both preventative and treatment applications in postpartum depression. It helps promote general well-being in pregnant and postpartum women. Pregnant women who performed moderate physical activity during the third trimester showed overall low prevalence of postpartum depressive symptoms.[33] Another study in 2010 found that women who participated in "Mother and Baby" program commencing at 6 to 10 weeks postpartum involving a physical therapist-led aerobic and strengthening exercise program and an education program experienced a significant improvement in overall well-being and decreased depression

symptoms.[34]

Pharmacological Interventions

Antidepressant Medication : Newer drugs like Bupropion, Escitalopram, sertraline have shown effects for breastfeeding postpartum women in very low amounts. Experts have recommended non-pharmacologic treatment modalities when possible.[35] Nortriptyline has most of the data supporting safety during breastfeeding.[36]

Psychological Interventions

Interpersonal Psychotherapy (IPT): IPT was originally developed to treat Major Depressive Disorders in a general adult population, but has been adapted to treat women during the perinatal period.[37] IPT includes identifying and managing role transitions, setting goals, developing social supports, and identifying and resolving interpersonal conflict. IPT is an intervention focusing at alleviating psychological symptoms, coping with problems associated with relationship conflict, thereby improving interpersonal functioning. IPT showed overall clinical improvement and prevention of postpartum depression and often full recovery is seen in several cases of treated patients.[38] For prevention this program involves 4–5 group sessions during pregnancy lasting 60–90 minutes and 1 individual 50 minutes postpartum session focusing on psycho education on the "baby blues", postpartum depression and stress management.

Cognitive Behavioral Therapy (CBT): CBT includes basic cognitive behavioral therapy of mood, understanding the physiological effects of stress, learning how to reduce cognitive distortions which contribute to depression and anxiety. This intervention consists of 1–2 hour group session for 6–12 weeks during pregnancy and 2–5 postpartum booster sessions. It includes basic cognitive behavioral therapy of mood, understanding the physiological effects of stress, learning how to reduce cognitive distortions which contribute to depression and anxiety. CBT appreciates the importance of rewarding activities and social networking along with parenting strategies to promote child development. Research suggested that antenatal CBT session and postnatal follow-up between five and eight weeks should be included in order to prevent postnatal anxiety and depression in an "at-risk population" of women with predominantly mild symptoms.[39]

Transcranial Magnetic Stimulation (TMS):This intervention helps women who do not respond to anti-depressants and psychotherapy. TMS is a non-invasive procedure used to stimulate and activate the hypoactive nerve cells by the use of magnetic waves. It is usually performed 5 times a week for 4 to 6 weeks to be effective.

Psychophysiotherapeutic intervention

Nilam Shakeela et al suggested that moderate to vigorous physical activity in bouts $\geq$10 min with $\geq$150 min per week in late pregnancy may reduce the risk of PPDS.[40] Another study by Beth A. Lewis et al suggested that exercise interventions of moderate intensity at 55–70% of HR Max and vigorous intensity at 70–85% of HR Max may have a protective effect on perceived stress among women at risk for postpartum depression.[41] The National Physical Activity Guidelines for Americans, released in 2008, encourages women to participate in 150–300 mins of moderate-intensity aerobic activities per week during pregnancy and after delivery.[42] In addition, the American College of Obstetricians and Gynecologists (ACOG) recommends 20–30 minutes of daily moderate-intensity PA to stay healthy during pregnancy.[43]

Physical Therapy has been shown to be effective in treating urinary incontinence, back pain and pelvic pain by strengthening the spinal and abdominal muscles in postpartum period. These musculoskeletal conditions often result from numerous physical and hormonal changes during pregnancy and physical therapy can help in these conditions by restoring function and improving associated depression symptoms. Additionally, hormone levels normalize faster in women who are physically active. A good tailored physical therapy program prescribes safe and specific exercises teach proper body mechanics and helps in prevention of PPD and stress management. The three main categories of physical activity during pregnancy include Planned and structured physical exercise program, housework chores and child care and work activities.[44]

Kegels Exercise - They improve and maintain bladder and bowel control by increasing the strength, endurance and correct function of pelvic floor muscles during pregnancy and postpartum hence preventing incontinence and prolapse. Kuhrt et al

recommended inclusion of pelvic floor muscle and stretching exercises in the early postpartum period for preventing depressive disorders in women.[45]

Stretching and Strengthening exercise - For first 6-12 weeks after delivery gentle stretching exercises are essential to help ease postpartum aches and pains. 10-20 minutes of moderate intensity strengthening exercises of major muscle groups e.g. Squats, lunges, arm strengthening, core strengthening should be done. Postnatal floor exercises help strengthening the muscles that play an important role in supporting your posture. LeCheminant et al demonstrated that resistance training significantly reduces the symptoms of postpartum depression.[46]

Aerobic exercise- after 4–8 weeks postpartum continue to walk regularly and after 8 weeks start with low impact aerobics exercises. Studies demonstrated that low impact aerobic exercises and upper and lower back, abdominal and pelvic floor strengthening exercises may positively affect depression symptoms via improvement in self-perception, self-efficacy, body image and perceived quality of life.[47, 48]

Relaxation exercise- includes Mitchell Physiological relaxation and Reciprocal relaxation method, Jacobson's technique of alternately contracting and relaxing muscle groups and breathing exercises. Studies have shown statistically significant decrease in depression symptoms by performing relaxation exercise sessions in the form of meditation and physical relaxation for 45 minutes per session, 3 times /week for 3 months postpartum.[49] Saeideh Nasiri et al conducted an RCT on pregnant women at 28–36 weeks and concluded that relaxation exercises reduce depression in pregnant women and prevent PPD.[50]

Conclusion

As prevention is always better that cure, various researchers have also shown that using physical therapy methods prophylactically have reduced the number of cases of postpartum depression. Preventive use of physical therapy techniques helps in various ways such as easing out labor, increasing the chances of normal delivery, reducing stress etc. ultimately resulting into reduced probability of occurrence of postpartum depression. During pregnancy and in postnatal period a mother undergoes many changes both mentally and physically. As physical and mental health are interlinked it is important to inform about the recommended level of physical activity for proper well-being of mother and child.

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Newer Development

SUDEP - Sudden unexpected death in epilepsy: Timely information to patients and caregivers can be lifesaving

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Epilepsy is a major global health problem; it is the most common chronic disabling condition of the nervous system affecting an estimated 70 million people worldwide.

In recent years, there has been much focus on sudden unexpected death in epilepsy (SUDEP).

SUDEP has been defined as the sudden, unexpected, witnessed or unwitnessed, non-traumatic, and nondrowning death in patients with epilepsy, with or without evidence for a seizure, with exclusion of documented status epilepticus, and when post-mortem examination does not reveal a structural or toxicological cause for death. Accepted practice is to classify all such deaths when there has been an autopsy "definite SUDEP" and those in which there has been no autopsy as "probable SUDEP". This is a broad definition that encompasses heterogeneous cases. Depending on the purpose (e.g., for studies on mechanisms of SUDEP), separation of SUDEP cases that occur in seizures and those (much rarer) cases that occur without a seizure might be worthwhile, because the patho physiology in these groups is probably quite different. Furthermore, in clinical practice, there are many cases that, because information is scarce or because there are plausible explanations for death, are sometimes considered as "possible SUDEP".

Sudden unexpected death in epilepsy (SUDEP) refers to the sudden death of a seemingly healthy individual with epilepsy, usually occurring during, or immediately after, a tonic-clonic seizure. The frequency of SUDEP varies depending on the severity of the epilepsy, but overall the risk of sudden death is more than 20 times higher than that in the general population. Several different mechanisms probably exist, and most research has focused on seizure related respiratory depression, cardiac arrhythmia, cerebral depression, and autonomic dysfunction. Data from a pooled analysis of risk factors indicate that the higher the frequency of tonic-clonic seizures, the higher the risk of SUDEP; furthermore, risk of SUDEP is also elevated in male patients, patients with long-duration epilepsy, and those on antiepileptic polytherapy. SUDEP usually occurs when the seizures are not witnessed and often at night.[1]

Although SUDEP has been recognised since the 19th century, only in the past two decades has the full extent and risk of this event been established. SUDEP is a clinical event and not a cause of death, most commonly occurs in the immediate aftermath of convulsive seizures, the pathophysiology of death is uncertain, and, because cases are mostly based on a diagnosis of exclusion, many uncertain cases exist.

Most cases of SUDEP are unwitnessed, occurring in seizures in which the individual is unobserved and in which assistance is therefore not at hand. Many occur during sleep, and usually when the individual is sleeping alone.

Many patients were found dead in the prone position.

In all witnessed deaths, seizures stopped before death. Respiratory arrest (obstructive or central) is thought to be the cause of death in most witnessed cases.

In almost all studies, the risk of SUDEP is concluded to be high in patients who have a high

number of tonic-clonic seizures; thus there is a positive association with seizure frequency and the duration of epilepsy.

Although SUDEP is more common in patients with chronic severe epilepsy, SUDEP can also occur in patients with infrequent seizures or even in the first epileptic seizure. SUDEP can occur in patients with occasional tonic-clonic seizures in Idiopathic generalized epilepsy.[1]

Information to patients/ Care givers: In general, patients should be fully informed about the risks of any condition or its treatment, although there is debate about the quality and timing of information about SUDEP to patients and relatives. Bereaved relatives often complain that they were uninformed of the risks.

Patients should have information about SUDEP, because although epilepsy is not usually a life-threatening condition, a small number of people do die in epileptic seizures from accidents and SUDEP, and the risk can be minimised by controlling tonic-clonic seizures. This information is best provided as part of comprehensive counselling about risks and prevention. Putting the risks in perspective is sometimes helpful.

Epilepsy-related death, particularly sudden unexpected death in epilepsy (SUDEP), is still underestimated by healthcare professionals and this may reflect the mistaken belief that epilepsy is a benign condition. The risk of death associated with epilepsy appeared rarely to have been discussed with patients or their families.[2]

Epilepsy is one of the highest common and predominantly encountered neurological condition that causes heavy burden on individuals, families, and also on healthcare systems. As per a study, 70 million people have epilepsy worldwide and out of which nearly 90% of them are found in developing regions.

Although with more efficient AED and diagnosis the sudden unexpected death in epilepsy (SUDEP) causes still remain highly unpredictable. The inconclusive nature of sudden unexpected death in epilepsy (SUDEP) has led to investigation of occurrences of the event and preventive measures for this fatal scenario which can lead to declination of early death in epilepsy. Besides varying global practices and health care policy, health care providers are looking forward to promote routine SUDEP awareness in patient counselling. Detailed understanding of the risk may improve the patient adherence to the disease, treatments and optimization of the death.

In most cases the sudden unexpected death of a young person who is healthy, apart from epileptic diagnosis, is unexpected or accepted by family and friends. It is a shocking event aggravated by the fact of not knowing such deaths are possible. Despite comprehensive investigation of the deaths, including autopsies, a clear explanation of the cause remains elusive adding to the unpredictability of the condition and causes of the death leaves a lot of Unanswered question while discussing sudden unexpected death in epilepsy (SUDEP).[3]

Disclosure of the risk of SUDEP to patients/ caregivers is not routinely done even though UK National Institute for Health and Clinical Excellence (NICE) as well as Scottish Inter collegiate Guidelines Network (SIGN) guidelines for epilepsy recommend it. SUDEP discussion was done in only 4% of patients with epilepsy especially if they had ongoing seizures. Only 8.76% of the Italian epileptologists discussed SUDEP with all their patients while 19.59% discussed with majority of their patients. The American Epilepsy society and the Epilepsy Foundation Joint Task Force recommended that information should be provided to people with epilepsy according to person's risk of SUDEP as part of the general epilepsy education.[4]

In our opinion timely information to the epileptic patients and caregivers about the SUDEP risk and communicate them to not/never leave the patient alone, can be lifesaving.

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Viewpoint

Nocturnal Binge Watching – A new emerging global biopsychosocial phenomenon in Youth: A type of voluntary insomnia

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Binge-watching is a relatively new behaviour pattern whose popularity has been increasing since 2013, ultimately to become one of the most popular ways of spending free time, especially among young people, especially during the night. The available information implies that there are two perspectives in understanding binge-watching. The first is related to entertainment, positive emotions, cognition, and spending free time. However, the second perspective emphasizes the negative outcomes of excessive nocturnal binge-watching and symptoms of behavioural addiction and the biopsychosocial consequences of this emerging trends.[1]

Today the internet has undeniably become an integral part of our lives since it grants us access to everything under the sun - useful information, diverse mediums of entertainment viz., movies, games, web series, music videos, sports, TV serials etc., at the click of a button. Recent technological advancements have brought 'Online Streaming Services' (e.g., Netflix, Amazon Prime) primarily into the limelight, which have almost replaced the trend of 'Television Watching'. For instance, Wagner[2] posits a drastic shift from viewing entertainment series on Television to watching them now on online streaming services. The availability of this viewing content at the touch of the fingertips has led to a remarkable rise in the popular practice of 'Binge-Watching'. However, the concept of 'binge-watching' has only recently surfaced as a topic of empirical research, therefore lacking empirical definitions. Netflix defined the practice of binge-watching as the consecutive watching of a minimum of two episodes of the same television series in one sitting. Another definition conceptualizes binge-watching as 'Marathon Viewing', which is referred to as viewing a number of episodes of a single web series in a short span of time. Trouleau[3] identified three classes or types of binge-watching behaviours based on the number of episodes a viewer watched:

1. Hyper-Binge: Consumption of a considerably large number of episodes – more than 7 episodes in a single day.
2. Binge: Watching 3-7 episodes in a day.
3. Regular: Watching only 1-2 episodes in a day.

A recent study conducted by Netflix posited that binge - watching has become exceedingly popular amongst 'Indians' as compared to viewers in other countries, making Indians the second highest binge watchers in the world (88 per cent) after Mexicans (89 per cent). With a significantly evident rise in the consecutive viewing of content at a rapid pace, there is a tendency that binge-watching practices may become problematic.

The advent of digital technology has led to the emergence of various video streaming services such as Netflix, Amazon Prime Video, Hotstar etc. These popular on-demand services provide the audience with easy access to popular movies, television series and web documentaries. Convenient access to these services, wherein, has led to an increase in the practice of viewing multiple episodes, movies, documentaries, or series in rapid succession, for long periods of time in a single sitting, known as 'Binge-Watching'. This 'overindulgence' in viewing online content can induce loneliness and impact the psychological well-being of viewers. However, this

concept has been the subject of limited research.

The viewer does not have to wait a week for the release of the next episode, which is characteristic of traditional television. However, one should also mention that binge-watching existed earlier and manifested itself as watching multiple episodes in TV marathons, on VHS, DVD, DVR—digital video recorder, or VOD—video on demand. The popularity of binge-watching increased between 2011 and 2015, ultimately to become a normal way of consuming TV series among general audiences. The latest data released by Netflix in the third quarter of 2019 show that this streaming platform has over167 million paying subscribers. This number increased rapidly from 5 million in 2012 to more than 167 million in 2020. It is worth mentioning that Netflix is available in 190 countries. The research conducted in 2013 shows that 62% of the American population admit that they binge-watch regularly. Furthermore, binge-watching is a regular way of consuming TV shows for 72% of those surveyed. Multiple studies imply that people at the age of 18 to 39 are more likely to binge-watch than older people. The differences between men and women manifest themselves in their TV show preferences. Women tend to choose comedies and dramas more, while men decide to watch fantasy or sci-fi series more frequently. The latest research shows that women are more likely to watch cable TV than men. Men might be more inclined to stream online content. However, the Netflix user base comprises 49% men and in 51% women. Moreover, people can binge-watch at any place, for example as they commute to work, using diverse electronic devices such as mobile phones, laptops, or tablets. Furthermore, another survey indicates that people tend to binge-watch alone, and that more than 70% of them lose control in terms of how many episodes they have actually watched in one sitting.

Recent literature emphasises that excessive forms of binge-watching could be similar to such behavioural addictions as video games/internet addiction or problematic social media use. This highly immersive behaviour provides immediate gratification, and thus it may lead to the loss of self-control and spending much more time on watching TV series than the person originally wanted. Research also show the relation between this type of sedentary activity and negligence of work or social relationships, lack of sleep, headache, irritability, gastric trouble, hypertension, body ache, confusion, dullness, lethargy, anxiety, depression, relapse of mania, bedtime procrastination, overweight, or increase in unhealthy food consumption, neglect of duties, impulsiveness, excessive use of alcohol and nicotine, daytime sleepiness etc.

Motivation

Most of the research refers to the Uses and Gratification Theory, which explains that individuals use media such as the internet, television, and social media to satisfy their needs. There are many reasons why people binge-watch. The basic explanation refers to instant gratification and hedonistic needs related to entertainment, engagement, and relaxation.

Another motivation for binge-watching is of a social nature. People do binge-watch to make social connections, to become part of the group or the fandom, to feel accepted by their peers.

Furthermore, the results obtained by Panda and Pandey[4] imply that social engagement, escape, influence of advertising, and accessibility are the main motives behind the intention to spend more time binge-watching. Surprisingly, the scientists indicate that people who experience negative gratification and feel anxious or nervous after a binge-watching session are more likely to spend more time doing it, thus becoming increasingly addicted to this behaviour.

Problems Related to Nocturnal Binge-Watching

The major risk behind the excessive binge-watching behaviour is the probability of developing symptoms of behavioural addiction. Multiple studies show that using binge-watching to obtain instant gratification and to regulate emotions is a maladaptive coping strategy characteristic of behavioural addictions such as problematic internet/computer use, gambling, and social media addiction. The motivations driving problematic binge-watchers are the urge to escape from reality, dealing with loneliness, habit, or passing the time. Furthermore, individuals who display a tendency toward problematic binge-watching may also decide to sacrifice their sleep to watch another TV series episode, which can lead to fatigue, lower efficiency at work or school, and sleep deprivation. Exelmans and Van den Bulck[5] emphasise the impact of binge-watching

on sleep quality. Excessive binge-watchers experience sleep of poorer quality and show more symptoms of insomnia than regular TV watchers. Their results show that cognitive pre-sleep arousal is a significant mediator in the above-mentioned relationships. There is a need for further research to determine the nature of the relation between binge-watching and sleeping patterns. As a sedentary behaviour pattern, binge-watching is also related to consumption of unhealthy food and reduced physical activity, especially among young people. Furthermore, the research conducted by Wheeler[6] emphasises that binge-watchers are more likely to display the symptoms of depression, loneliness, and anxiety.

In a study by Narain & Sahi[7] concluded that reduced social interactions and the tendency to stay at home can potentially lead binge watching and loneliness to co-occur which can further negatively impact viewers psychological well-being. Thus certain strategies like maintain journals, reading books, practicing mindfulness through meditation, fostering social relationship with peers, planning vacations with family and friends, pursuing hobbies and remaining physically fit and active can be helpful to reduce binge watching.

Conclusion

Binge-watching has become one of the most popular ways of spending free time for people of various age groups. Young people account for nearly 70% of the regularly binge-watching audience. The most common definition of binge-watching is watching multiple episodes of a TV show or one or two movies in one sitting.

Multiple studies emphasise that people who play video games or use the internet excessively experience more intense symptoms of depression, anxiety, social anxiety disorder in particular, as well as sleeping disorders, and are exposed to a higher risk of substance addiction and lack of self-control. However, the relation between excessive binge-watching and psychiatric disorders is still unclear and requires further research.

To summarise the foregoing elaborations, binge-watching can be both harmonious and highly entertaining as well as an obsessive and compensatory behaviour. People are driven by multiple motivations for binge-watching, including those of a social and cognitive nature, by transportation into the narrative, or willingness to pass the time, but also to escape daily life problems, to regulate negative emotions, and to gain instant gratification. The research implies that, particularly, the excessive forms of binge-watching can involve symptoms of addiction, such as lack of control, negative health and social effects, feeling of guilt, and neglect of duties.

Our preliminary observations

Our observations during the Covid-19 pandemic are that most of the clients are females, college going students binge watching mainly in the night, very common during the holidays, lockdown, vacations and just after the exams. They had come with their parents with chief complaints of sleep disturbances, poor appetite, restlessness, irritability, headache, gastric symptoms, anxiety, depression, poor concentration, memory disturbances, confusion, relapse of psychosis, mania and seizure disorder, neglect of studies and duties etc. In our opinion this kind of nocturnal binge watching is going to create significant biopsychosocial issues and it seems that this is a type of voluntary insomnia adopted by youth of new generation.

It seems important to continue the research on both unproblematic and problematic nocturnal binge-watching, as well as on the relation between this activity and psychiatric disorders. Further studies addressing diverse population groups would also prove helpful for better understanding of this phenomenon and could potentially lead to improved prevention and therapeutic care.There is a need for further research to be conducted on larger and diversified populations, mainly college students and youth to reach more understanding of **nocturnal** binge-watching behaviour patterns.

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Forensic Psychiatry

Psychological Autopsy: Solving the Mystery of Suicide

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Introduction

Psychological autopsy refers to a post-mortem investigative procedure that seeks to uncover the intention of the decedent through a thorough retrospective valuation through structured interviews of informants as well as a scanning of relevant records.[1] Psychological autopsy also known as verbal autopsy is conducted to know about the cause of equivocal deaths.[2] Psychological autopsy is determining the psychological state of the deceased prior to death by methods such as reviewing the deceased medical history, his behaviour prior to death and interviewing his family and friends. In some cases, when by conventional autopsy it is difficult to decide the manner of death, whether suicide or homicide, psychological autopsy may prove valuable. Psychological autopsy is one of the most valuable tools of research on completed suicide. Psychological autopsy is a primordial research tool in which retrospective investigation helps in understanding suicide.[3] The psychological autopsy particularly focuses on suicide risk factor involving reconstruction of the motives and existential dread of the deceased.[4] The Psychological autopsy is a well-tested method of investigating complete suicides and this term was coined by Shneidman.[5]

Methodology

The integrity of the deceased along with ethical considerations is most vital part of the interview.[6-7] Obtaining the informed consent before the investigation is of prior importance for ensuring confidentiality, anonymity and confidence with the informant. Psychological autopsy involves interviewing of the family members along with close inmates for gathering all the personal information, either primary or secondary, about the deceased.[2] Investigation of psychological, psychiatric, medical and social data in a systematic way. A questionnaire has to be prepared to found an answer to during the investigation.[2]

The medical status, occurrence of any psychiatric disorder, history of previous suicide attempts, personal life issues, any help taken priory from mental health professionals, ill-physical health, previous family history of suicide, the lethality rate of the method use, general stress busting pattern, lifestyle of the victim, change in lifestyle and the way in which the informants reacted to death are the areas taken into consideration.[2] In case of suspected alcohol-or-drug related deaths, it is useful for the forensic psychiatrist to have some working knowledge of toxicological concepts and methods.[9]

Psychiatric Incrimination

Majority of psychological autopsy studies have investigated psychiatric disorders of the victim that died due to suicide as a part of their study design. Investigation of the personality disorders is very essential rather than exclusively focussing on the victim's behaviour in final months of his life.[19] In psychological autopsies high prevalence of mental disorders has been found in people who have committed suicide. Studies have revealed that majority of individuals those who committed suicide suffer from one or more mental disorders. Depression being found in the majority of cases and hence this outcome has proved to be beneficial in identification and treatment of such cases at earliest so as to prevent suicide.[10-12]

Foredeal of Psychological Autopsy

To understand the psychological and contextual circumstances preceding suicide psychological autopsy with its systematic method has proved to

be beneficial for the masses. It has been beneficial in governmental inquiries into major public suicides and in legal contexts. It plays an important role in suicide prevention, crisis intervention which helps in the prevention of such unfortunate incidents and proves to be informative for medical examiners and to the judiciary as well.[9]

Forensic Application of Psychological Autopsy

To apprehend suicides and equivocal deaths: In a case of suicide, it is necessary to determine the manner of death based on the facts that are collected by the process of interview and from the documents of the victim. There may be the cause of suicide on the other hand it might the case of sub intentional. The question lies gap between the probability of committing suicide and sub-intentional death.[13]

Comprehend the risk factors - Considering age as a risk factor, it is stated that children are considered to commit suicide because they don't have the knowledge about the lethality.[14] Considering sex as a risk factor, death by suicide among males are 3 times more than females. Certain factors that instigate the victim are unemployment, relationship, substance abuse, painful emotions, socio-economic status and poor level of emotional regulation. These areas need to be well inspected by a Forensic Psychologist. Profession of the individuals is also considered as a risk factor as the workload and downfall in their professional career can force them to acquire habit of consuming drugs and alcohol which may trigger them to commit Suicide.[15]

Outlook of personality - Collection of personal information from the family members and close inmates about deceased could enable us to know the probable cause of death. In cases where murder is self-defence is argued for, psychological autopsy could act as corroborative evidence exposing the personality of the victim.[2]

Social Media survey - It is a retrograde investigation of life of the victim through social media survey to clarify the reason that led the victim to commit suicide. In this modern society every individual have an account in every platform. A major portion of individuals who use social media share almost all their emotions in the social media platform. So, it is also a good tool for investigating to know the psychology of the deceased person. Cybercrimes like 'cyber-bullying, cyber-stalking' etc. may alter the mental status of the victim leading him to commit suicide. In these cases a victim may become distress, emotional suffer, psychological problematic which may be considered as an instigating factor.[15]

Institutional Care: To reduce chances of future incident in the cases involving suicide due to depression the mental state of the other inmates is also to be taken into consideration and has to be assessed meticulously.

Ethical Considerations and Sensitivity

Ethical consideration is the most vital part of psychological autopsy. The procedure for autopsy cannot be preceded without the wilful Informed consent of family members. After the death of the victim, family, friends and relatives are generally found in distress. So, this method of investigation is usually conducted between 3 to 12 months after death in order to permit time for bereavement.[19] When this time frame is used no significant relationship between the timing of interview and quality of information is found.[20] With prior information of the process along with consent of the individual, the community and government procedure can be continued.[16] It is highly recommended that the mental and physical state of the interviewees should be taken into consideration before interviewing and they are allowed to quit interview at their will at any moment or middle of an interview. Psychiatric or psychological support should be given to the relatives if needed. Research interview is relieving rather than stressful to the family members as per the researchers of psychological autopsy.[19] Interviewing of family members and friends of the victim is a very sensitive matter and the investigator must consider their reactions. Ideally the investigator should have adequate clinical experience to be able to handle reactions of the family members with appropriate sensitivity.[20] A professional psychologist should be hired to conduct all the proceedings.[15]

Validity and Future of Psychological Autopsy

Psychological autopsy is the major procedure to acquire the reason for the death in cases involving suicide. Its validity is questioned due to an anonymous set of rules and regulations to be followed during the procedure. The next concern that evaluates its validity is incompetency of the personals

conducting the autopsy might be having low forensic expertise and so can miss out important case related facts.[2] The psychological autopsies that would conducted in future should be more carefully targeted into high-risk groups and questions relevant for suicide prevention, such as the treatment they received as compared with other patients. Due to its multifactorial etiology, integrating different spheres of risk factors is likely to further improve understanding of suicide.[19]

Admissibility

In cases in which amelioration through other evidences is not possible admissibility of psychological autopsy is quite significant. In the Current scenario, there are ways more difficulties for the admissibility of psychological autopsy report. There is a greater chance of admissibility of "hard science" and medicines as evidence rather than "soft science" and social science due to reliability issue.[17] Beyond the research and development required, psychological autopsy should meet the legal standards and criteria for admissibility. In Indian context, all the evidence are admissible under section 45 of Indian Evidence Act and Section 45-51 deals with the testimony of the expert in the court.[18]

Limitations

Firstly, there is no specific universal defined definition for Psychological Autopsy which makes very difficult to accept the report as evidence. After the sadly death of the victim the interviewee may provide an emotion related response, which may alter the statement given. There may be the probability of giving fallacious statements against the deceased due to their interpersonal conflicts. Some may provide here and say statements which have no validity in the court of law. There is no specific procedure to conduct the investigation. It may be the case that the interviewee is not comfortable to give response to the interviewer. Lastly, there is no specific section mentioned in the Indian law for the administration of psychological autopsy report.[15]

Discussion

Psychological Autopsy technique has various pros and cons. Advantages are it can be used to assessing the psychology of an individual prior to death by collecting all information relevant to the case. Disadvantage is there is no legitimate error rate in this technique so it is generally not accepted in the court. Various researches are yet to be done in this field and can be used as an investigating technique. It is not limited to suicide cases but can be used in all cases to determine the actual manner of death i.e. Natural, Accidental or Homicidal. In Indian context psychological autopsy should be legally defined in our legal system and should be accepted as real evidence rather than corroborative evidence.

Conclusion

Psychological autopsy is pivotal investigating tool to ascertain the mode of deaths by examining the factors surrounding the death and the mental status of the deceased. In forensics, there are various methods that are used to solve crime but in certain challenged cases there is a need to know the root cause of the death. However, in our country, it has more commonly been used as a research technique to examine risk factors associated with suicidal deaths and to determine the reason for committing suicide. There is no specific protocol to conduct this technique so it is mandated that a professional psychologist should conduct the investigation. It can be used as corroborative evidence in the court of law although this procedure has certain level of ambiguity.

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Drug Review

Etifoxine for the Treatment of Anxiety Disorders

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Introduction

Anxiety is an emotional experience characterized by a state of arousal and the expectation of danger. Though it possesses an adaptive role in preparing the body to deal with upcoming threatening stimuli from the environment, processing such aversive information by the brain, especially by the amygdala circuits, is associated with a negative subjective state. According to DSM-5, such anxiety states include panic disorder, generalized anxiety disorder, separation anxiety disorder, specific phobias, social anxiety disorder and adjustment disorder with anxiety (ADWA).[1]

Anxiety and adjustment disorders are widely prevalent worldwide that impact the quality of life and functioning, and productivity of an individual. ADWA are often comorbid with other medical conditions. According to the World Mental Health Survey (WMHS) 2016, the lifetime prevalence of anxiety disorders (ADs) across various countries ranges between 3% and 19%. The Global Burden of Disease 2015 ranked ADs as the sixth-largest contributor of years lived with disability.[2] As per National Mental Health Survey (NMHS) 2016, the prevalence of ADs in the adult general population was 2.57%. In addition, the risk factors were female gender, age group (40-59), and urban metro dwellers. The overall treatment gap for AD was 82.9%.[3]

Animal and brain imaging studies have shown that long-standing dysregulation of neural networks involving cortical and specific subcortical areas (amygdala, hippocampus, thalamus, prefrontal cortex, cingulate cortex) leads to the symptoms of anxiety. Especially, reduced inhibitory GABAergic transmission in the central nervous system (CNS) is critical for the expression of anxiety.

As ADs are associated with neuronal hyperexcitability in the CNS processing emotions, the therapy is directed at increasing inhibitory control, mostly by targeting γ-aminobutyric acid receptor type A ($GABA_A$ receptor) in the CNS.

Etifoxine

Etifoxine is a non-benzodiazepine anxiolytic and anticonvulsant drug developed by Hoechst in the 1960s. Etifoxine has been authorized and marketed since 1979 for the treatment of psychosomatic manifestations of anxiety.Till now, it has been approved in 53 countries worldwide. On 27 January 2022, European Medical Agency (EMA)'s human medicines committee finalised its review of etifoxine and concluded that the drug can continue to be used for the treatment of anxiety disorders, but it should not be used in patients who previously had severe skin reactions or severe liver problems after taking etifoxine. The recommended dose of etifoxine is 150-200 mg per day in 2 or 3 divided doses, and the treatment duration is limited from a few days to a few weeks.[4]

Advantages of Etifoxine over benzodiazepines

Benzodiazepines have been the most commonly used drugs in the treatment of anxiety-related disorders, but they have adverse effects, like dose-related anterograde amnesia, sedation, impaired psychomotor performance, cognitive impairment, myorelaxation, development of tolerance, addiction and dependence and such adverse effects do not occur with etifoxine due to its specific action on the β subunit of $GABA_A$ receptor. Moreover, etifoxine preserves psychomotor, attention and memory performance.[5,6]

Chemical structure of Etifoxine

Etifoxine is a 2-ethylamino-6-chloro-4-methyl-

4-phenyl-4H-3,1-benzoxazine hydrochloride, and its chemical structure is shown below[7].

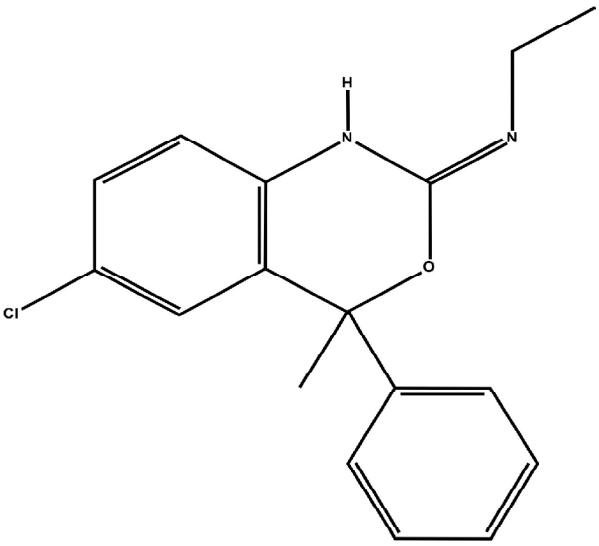

Fig. 1: Chemical structure of Etifoxine.

Mechanism of action

The anxiolytic action of etifoxine is attributable to two mechanisms. The first is that etifoxine increases GABAergic neurotransmission via allosteric interaction with the $GABA_A$ receptor.In fact, etifoxine preferentially activates $GABA_A$ receptors that encompass the β2 and or/ β3 subunits that are not the targets of benzodiazepines and neuroactive steroids (5). The second mechanism is the modulation of $GABA_A$ receptors indirectly via stimulation of neurosteroid (pregnenolone) production after etifoxine binds to the 18 kDa translocator protein (TSPO) of the outer mitochondrial membrane in the central and peripheral nervous systems, previously known as the peripheral benzodiazepine receptor.[8]

Recent studies have shown that etifoxine has significant anti-inflammatory activity in the CNS. Effects on the immune system and neuroendocrine system, particularly via binding to the mitochondrial outer membrane translocator protein and synthesis of neurotropic factor, also contribute to the anxiolytic activity of etifoxine.[9]

Pharmacokinetics

Etifoxine is rapidly absorbed from the gastrointestinal tract after oral administration. The oral bioavailability is approximately 90%. It does not bind to blood cells, and strongly binds to plasma proteins (88-95%). The time to reach maximal blood concentration is 2-3 hours. It is metabolized rapidly in the liver to form several metabolites. Diethyl etifoxine is one such metabolite that is pharmacologically active. Etifoxine can cross the blood-placental barrier. The half-life of etifoxine is about 6 hours, whereas its active metabolite diethyl etifoxine has a half-life of almost 20 hours. It is primarily excreted in the urine as metabolites, and some of its metabolites are also excreted in the bile. A small amount of the drug is excreted in an unchanged form.[10]

Dosage and adverse effects

The therapeutic dose range of etifoxine is 50 to 200 mg per day for a maximum period of 12 weeks. The most common adverse effect is drowsiness in the early days of treatment. Other adverse effects of etifoxine are lethargy and excessive sleepiness, which occurs after its overdose. It can also potentiate the other drugs that depress the central nervous system. It can also potentiate the effects of alcoholic beverages. It is contraindicated in shock, myasthenia gravis, severe hepatic and renal disease, severe respiratory failure, adolescents under 18 years of age, hypersensitivity (skin rash, urticaria, angioedema), and galactosemia.[10]

The safety profile of Etifoxine

In the French pharmacovigilance survey (2000 – 2012) on etifoxine, 350 cases were analyzed, out of which the most commonly reported adverse drug reactions (ADR) were dermatological (59%) or acute hypersensitive reactions, mainly isolated cutaneous eruptions. Drug rash with eosinophilia and systemic symptoms (DRESS), erythema multiforme, Stevens-Johnson syndrome, vasculitis or serum sickness-like reaction were also reported. Liver dysfunction with acute hepatitis was also reported. Abdominal pain, vomiting and dyspepsia were the most common gastrointestinal side effects, with more serious and rarer, including acute colitis and subacute inflammatory lesions of the colon. CNS-related side effects include headache, visual disturbance, sleep disorder, insomnia or somnolence, and dizziness.[11]

Efficacy and tolerability clinical studies

Servant et al carried out the first multicenter, randomized-controlled, double-blind study assessing the efficacy of etifoxine vs buspirone in 170 patients

with a primary diagnosis of adjustment disorder with anxiety (ADWA) in France in 1998. Patients were given either etifoxine (150-200 mg/day; n=83) or buspirone (15-20 mg/day; n=87) for four weeks. All patients had clinical anxiety at inclusion, according to their Hamilton Anxiety Rating Scale (HAM-A) score ($\geq$18). Results showed the superiority of etifoxine over buspirone for the mean HAM-A score at four weeks (p=0.05). In addition, the etifoxine group had a significantly better Clinical Global Impression (CGI) Scale-Global Improvement score than the buspirone group from day 7 of treatment ($p < 0.001$ on day1, and p=0.02 on day 14 and 28). CGI-Efficacy Index (relationship between anxiolytic efficacy and undesirable effects) on day14 and 18 was also better for etifoxine (p=0.01 and p=0.05). CNS-related adverse effects such as somnolence, vertigo, and headache were reported in 40.7% of the patients in the etifoxine group and 58.6% of the patients in the buspirone group.[12]

Nguyen et al conducted a second multicenter, randomized, controlled, double-blind study comparing the efficacy of etifoxine vs lorazepam in outpatients with ADWA. Patients were treated with either etifoxine (50 mg three times per day; n=93) or lorazepam (2 mg/day divided into three doses: 0.5 mg in the morning and noon and 1 mg in the evening; n=96) for 28 days. The anxiolytic effect observed in etifoxine was non-inferior to that of lorazepam (Schuirmann non-inferior test: p=0.0002 for HAM-A score on day 28, and p=0.0001 on day 7). Moreover, a larger number of patients responded to treatment, as expressed by a total decrease in the HAM-A score from the baseline to day 28 of $\geq$50%, in the etifoxine group (72% vs 56%; p=0.0288). Patients in both treatment arms showed improvement in CGI score by day 28, but more patients had marked improvement (CGI score <3) in the etifoxine group than in the lorazepam group (p=0.022). The CGI-Efficacy Index was better for etifoxine on day 28 (p=0.038). No significant difference in the number of adverse effects between the etifoxine and lorazepam groups. Somnolence was seen in 10.7% of patients in the etifoxine group and in 18.7% of patients in the lorazepam group. After one week of treatment completion, withdrawal symptoms were assessed and found that the incidence of rebound anxiety after treatment cessation was significantly greater (p=0.034) in the lorazepam group (eight patients) than in the etifoxine group (one patient).[13]

Stein et al did a multicenter, double-blind, randomized clinical trial to evaluate the efficacy of etifoxine (150 mg/day; n=100) vs alprazolam (1.5 mg/day; n=101) for a period of 4 weeks in 201 outpatients with ADWA. By day 28, the mean HAM-A score dropped by 72.5% in the etifoxine group and by 79.7% in the alprazolam group. But, one week after treatment discontinuation (Day 35), the HAM-A score in the etifoxine group was still decreasing, whereas it had started to rise in the alprazolam group, and the difference between the groups on the mean change from day 28 to day 35 was significant (p=0,019). Likewise, the CGI-Severity score decreased between day 28 and 35 in the etifoxine group, whereas it increased in the alprazolam group (p=0.004).[14]

These clinical trials demonstrate the efficacy of etifoxine as an anxiolytic in ADWA patients with a good tolerability profile, especially its preservation of cognitive function and vigilance. Besides that, etifoxine is not associated with either rebound anxiety or withdrawal symptoms following treatment cessation.

Conclusion

Etifoxine is a non-benzodiazepine anxiolytic drug with selectivity for the β subunit of the $GABA_A$ receptor. The potentiation of $GABA_A$ receptor function is not exclusively restricted to anxiolytic action of etifoxine. Etifoxine also possesses anticonvulsant property, and it also limits acute pain expression and alleviates pain symptoms resulting from an inflammatory or neuropathic insult. In addition, etifoxine attenuates CNS and whole-body inflammation processes recognized to be associated with anxiety. Recent studies suggest that the etifoxine molecule also possesses neuroprotective, and neuroplastic properties and promote nerve regeneration.

Clinical studies have shown the efficacy of etifoxine in the symptomatic management of anxiety, especially in patients with AWDA, with a daily dose of 150-200 mg. The tolerability profile of etifoxine is better than that of benzodiazepines, particularly because of a lack of effect on memory and vigilance. Moreover, treatment cessation does not cause drug dependence, withdrawal, or rebound anxiety. The anxiolytic efficacy of etifoxine, its better tolerability and safety profile, and the absence of drug

dependence are supporting etifoxine as a therapeutic option in the management of AD.

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Case Report

Eye Movement Desensitization and Reprocessing Therapy in Anorexia Nervosa: A Trauma Based Approach

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Introduction

Anorexia nervosa (AN) is a type of eating disorder characterized by an intense fear of gaining weight or becoming fat, and an extreme and persistent restriction of calorie intake resulting in a body weight that is significantly lower than what is expected for a particular age, sex, height and developmental trajectory.[1] Individuals with AN experience body image distortion, and typically lack insight into the seriousness of the condition. It has a prevalence of about 0.3% in young women, with an average age of onset around 15 years; females greatly outnumber males (9:1). It runs a chronic course with frequent relapses, and has the highest mortality among all psychiatric disorders.[2] Some researchers proposed an association between traumatic life events and AN.[3]

Eye movement desensitization and reprocessing (EMDR) is a therapy which has a structured three pronged protocol used to address past, present, and future aspects of a person's traumatic memories. It is based on Francine Shapiro's adaptive information processing (AIP) model, which conceptualizes mental illnesses as a manifestation of unresolved traumatic experiences. It follows a standard eight-phase procedure.[4] (Table 1)

Treatment starts with taking an AIP-informed history, preparation and stabilization of the client, and assessment of target memory. The patient is then asked to bring in mind the chosen target, simultaneously attending to a visual, auditory, or tactile bilateral stimulus (BLS). After a set of BLS, he is asked to report whatever comes up, mostly memories, thoughts or sensations. This process is repeated until the memory is no longer disturbing. When the memory is desensitized (reflected in a rating of 0–10 on the Subjective Units of Disturbance [SUD] scale), the procedure focuses on strengthening a selected positive cognition, as rated on the Validity of Cognition (VOC) scale. Lastly any disturbing body sensations, if present, are processed.[4] After working on the past memories, present disturbances and anxieties related to future are similarly addressed.

Table-1: Eight-phase protocol of EMDR[4]

Phase 1	History Taking
Phase 2	Preparation
Phase 3	Assessment
Phase 4	Desensitization
Phase 5	Installation
Phase 6	Body Scan
Phase 7	Closure
Phase 8	Reevaluation

In the following cases, we adopted a trauma-based approach using EMDR therapy in combination with pharmacotherapy in two adolescents with AN.

Case 1

An 11 year-old boy presented with weight loss of around 23 kg (55 kg to 32 kg) over a period of a year. His BMI at the time of presentation was 14 kg/m^2. Initially he stopped eating packaged and fried food, gradually stopped eating almost everything surviving only on half a chapati and a glass of

coconut water throughout the day. He would engage in 2-3 hours of cycling daily. He would stand in front of the mirror and repeatedly check if he got any extra fat in his body. He had stopped going to school, lost interest in studies and other extra-curricular activities and would mostly remain irritable and lethargic. He would express fears of becoming fat but did not consider it to be a problem. On probing it was found out that prior to onset of symptoms, he was bullied at school for being overweight.

He was already on Olanzapine 2.5 mg and Fluoxetine 20 mg/day for three months with no significant improvement. Olanzapine was increased to 5 mg/day. In view of the history of bullying, EMDR therapy was started.

At the end of the 4 sessions, he demonstrated improvements in body weight and eating pattern. He was able to acknowledge improvements in his eating behavior. He resumed school, with an increased confidence in interacting with others and without avoiding social situations anymore. After consistent improvement of six months, his medications were gradually tapered down and stopped. At follow-up, after 12 and 24 months, his weight was stable (52 kg), and his BMI was within normal limits (22.8).

Case 2

A 14 year-old girl came with weight loss of around 12 kg (46 kg to 34 kg) over a period of 6 months and amenorrhea for 4 months. Her BMI at the time of presentation was 13 kg/m^2. Initially she started with regular work out and stopping outside food which she was very fond of. Then she drastically reduced her overall food intake, checking calorie count of whatever she ate. She would prepare her own food without any ghee/ oil or sugar and did not take any food offered by her family members. She would secretly have 4-5 lemons and green chilly daily as she had read in google that it increases metabolism. She would remain standing throughout the day to burn calories, would religiously count her steps in her smart watch. She would spend hours looking into the mirror and repeatedly asking her mother that if she has developed belly fat. She struggled to focus on her studies. At school, one of her teachers made fun of her for apparently having excess belly fat.

She was initially started on Olanzapine 2.5 mg and Fluoxetine 10 mg/ day which was gradually increased to Fluoxetine 40 mg/ day and Olanzapine 7.5 mg/ day. As the onset could be traced back to being ridiculed at school, EMDR sessions were started. The initial EMDR sessions aimed to process the disturbances caused by the traumatic memories of teacher making fun of her. After past memories were processed, the therapy sessions focused on the fears associated with eating and weight gain and then building confidence to face the teacher and any other challenges that might occur in future.

Five months into the treatment, she started to overcome her fears, her oral intake and weight gradually increased and stabilized at premorbid level, menstrual cycles resumed. The medications have been tapered, olanzapine has been stopped, and Fluoxetine reduced from 40 mg to a current dose of 10 mg with a plan to discontinue it in near future.

Discussion

This case series highlights that past traumatic experience may be directly linked to the onset of AN in some individuals. EMDR therapy is recognized as an effective treatment for posttraumatic stress disorder; however, research on its use for AN is limited. A study by Bloomgarden and Colagero investigated effectiveness of EMDR in treating patients with eating disorders.[5] Our case series contributes to the existing data on successful use of EMDR in AN.

Several limitations of this study should be considered. We presented a series of only two cases, so the results obtained may not be generalizable. Another limitation of the study is concurrent use of pharmacotherapy which might have affected the study result.

To conclude, the intent of this study was to test the effectiveness of EMDR therapy for treatment of AN. Randomized studies with long-term follow-up using EMDR as the sole treatment modality are needed to determine its effectiveness in this population.

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Case Report

Case Report of a 16 - Year Old Girl of Pseudocyesis with Schizophrenia

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Introduction

Pseudocyesis is a rare condition in which a non-pregnant person has false belief of being pregnant and it is associated with objective signs and reported symptoms of pregnancy.[1,2]

Negative findings on USG and negative result of B-HCG in blood or urine are confirmatory signs of pseudocyesis.[3,4] Pseudocyesis is a rare condition defined in the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5), as when a person has a false belief of being pregnant, accompanied by objective signs and symptoms of pregnancy, which may include abdominal enlargement, oligo-menorrhea/amenorrhea, subjective sensation of fetal movement, nausea, breast engorgement, and secretions, and labor pains at the expected date of delivery, despite not being pregnant. Confirmation of pseudocyesis is achieved with negative pregnancy testing of blood and urine, or ultrasound.[3] In some of the patients, the belief of being pregnant is held with delusional conviction.[9]

Aim

To assess the clinical profile of rare case of a young unmarried girl of pseudocyesis with schizophrenia.

Case

Session 1

A 16 year old unmarried girl, 11th class student, living with her parents and elder brother was admitted in Paediatrics department for the complaints of pain in abdomen and headache. She was referred to psychiatry department for sleep disturbance, verbal aggression and irritability. On evaluation, patient described this type of aggression and irritability is common as she believed her LMP was 3 months ago and was confirmed pregnant by a gynaecologist. Her parents revealed that she never went to see any gynaecologist due to which the patient got irritated. The girl wasn't cooperative but was oriented. She showed circumstantiality with irritability and suspiciousness. Cognitive functions were matching the patient's age and level of education. Psychological testing was advised which she declined.

Session 2

She said that she's been feeling nauseous and dizziness and her baby has started kicking. She was sent for obstetric examination and ultrasonography which showed non-distended abdomen, non-palpable uterus with no breast tenderness or enlargement. She was advised UPT which was negative. Blood samples were sent for B-HCG, ACTH, FSH, LH, TSH, Prolactin and Testosterone levels estimation which suggested a non pregnant state. The obstetrician suggested her to reduce her weight as that might be causing amenorrhoea. USG-ANC was done to detect gestational sac and fetal heart sound. On visualisation, uterine cavity was empty, no gestational sac or adnexal masses were noted which were suggestive of a non pregnant state. Haemoglobin was 8 gm/dl. To rule out organicity, MRI Brain was done which was normal. She was told about the results of these investigations, but she was unwilling to accept them.

Session 3

She was still determined that she was pregnant. When asked about her partner , she revealed that she was in a long distance relationship with a boy who lived in Lahore, Pakistan. According to her, one day she was playing in her school and that boy saw her from Lahore. He liked her and that is how they started dating, suggestive of Extracampine hallucincations. According to her, she used to call him and also met him once during which they got physical. When she was asked about the boy's phone number, she said that she cannot recall it. When asked for his photo , she said that she has deleted his pictures from her phone. Her parents denied having any knowledge of this boy. There is no family history of psychiatric illness. According to them , she used to talk to herself when she was alone. Her father described an incident in her school where she hugged a pole and started crying.

Session 4

When the girl was told that her parents have no knowledge about this boy, she said that she hasn't told her parents but only her brother. Her brother also denied having any knowledge about this boy. When asked about any friends or distant relatives living in Lahore , he denied that too. Hence , the girl was probably having auditory and visual hallucinations. The false belief that she was pregnant was acute and morbid in origin, unshakable and she was preoccupied with it.

Treatment and Results

She was started on Tablet Risperidone 2 mg 1 OD, Tablet Clonazepam 0.25 1 OD. This was continued for 7 days. Improvement in complaints of disturbed sleep, irritability and aggression was noted. She took discharge and came for regular follow ups at an interval of 20 days. She showed improvement in aggression, irritability, sleep disturbance and decrease in visual and auditory hallucinations. Clonazepam was stopped after 14 days, risperidone was continued for 20 days. Gradually, her visual hallucinations disappeared, auditory hallucinations were less frequent. Same treatment was continued for 20 days. She was more cooperative on her next follow up. Eventually her auditory hallucination also disappeared. On this visit, her mental status examination revealed that her delusion has started to weaken and she started gaining some insight. Patient is still on treatment.

Discussion

Delusions are false ideas that cannot be corrected by reasoning. Pseudocyesis maybe present in young women as well as those approaching menopause. Non pathological states as spasm of diaphragm with relaxation of abdominal muscles may cause an impression of abdominal enlargement. Fetal movements have been reported , it is usually intestinal activity or contraction of abdominal muscles. It's encoded as 300.82 in DSM-5 and F45.9 in ICD-10. As discussed, patient is having delusion of being pregnant, visual, auditory (first person) and Extra Campine hallucinations (as patient was hearing voice from Lahore). Patient of pseudocyesis with schizophrenia is different from most of the other cases described earlier.

Conclusion

To the best of our knowledge no case has been reported in India under 16 years of age in unmarried girls with pseudocyesis with schizophrenia. Our case adds to the limited literature on the phenomenon of pseudocyesis with schizophrenia.

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Case Report

Atypical case of Parosmia

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Introduction

Parosmia is a distorted sense of smell. It occurs when smell receptor cells in the nose do not detect odors or transmit them to your brain. The qualitative olfactory dysfunction (dysosmia or olfactory distortion) can be divided into parosmia (distorted sense of odor) and phantosmia (smell dors that are not actually present).[1-3] Parosmia is usually temporary, but in some cases, it is permanent.[2-4]

Causes include bacterial or viral infections, head trauma, neurological conditions (head trauma, epilepsy, brain tumor, multiple sclerosis, Parkinson Disease), drugs (Antibiotics e.g., amoxicillin, azithromycin, ciprofloxacin; antihypertensives e.g., amlodipine, enalapril; statins e.g., atorvastatin, lovastatin, pravastatin; levothyroxine etc.) and COVID-19. Less often, parosmia may be caused by a sinus polyp. Traumatic Brain Injury is one of the most common causes of olfactory dysfunction, including both quantitative and qualitative smell disorders. During hypoxic injury blood flow falls below a certain critical level that is required to maintain cell viability. The interrupted supply of oxygenated blood to cells results in anaerobic metabolism and loss of adenosine triphosphate (ATP), and cellular membrane disruption.[1,2,4-6]

In the absence of a standardized test for the parosmia, the diagnosis is based on parosmic experience reported by the patient. Instead, a qualitative method to evaluate the olfactory function is the Sniffin' Sticks Test (SST). In particular, the sub-test of identification could indicate if the recognized odors are different compared with those inhaled. Unfortunately, an objective measure of qualitative olfactory distortion is so far unavailable.[1,4] To evaluate if the parosmia is a secondary disorder to neurological diseases, it is needed to perform an assessment based on history, clinical and instrumental neurologic examination, and smell testing. The history should collect patient's self-reporting, the presence of current or recurrent allergic rhinitis and sinus disorders, any recent or past head trauma, smoking history, alcohol abuse, concomitant medications, any weight loss, and/or change in food habits. In addition, an evaluation on memory and cognitive performance is often advisable. A clinical evaluation is needed to exclude that the cause of parosmia is upper respiratory tract infection or sinonasal diseases. For patients with confirmed head trauma, epilepsy, or MS, brain MRI could be useful in order to localize a possible lesion of the olfactory system and, then, postulate that parosmia is caused by it. Treatment includes olfactory training therapy ("smell training"), which involves intentionally sniffing four different types of odors up to 15 seconds. The process is completed twice daily for several months. Recovery is seen in 60 percent cases in over 3 to 5 months.[3,4]

Case Report

Ms R, a 37-years old married, Hindu lady was referred to psychiatry outpatient department with complaints of headache, dizziness and loss of smell. The illness had abrupt onset with continuous course and there was no precipitating factor. The patient had initially presented to ENT outpatient department with a probable diagnosis of somatoform disorder. She was investigated in ENT outpatient department to rule out local nasal causes. There was no past or family history of any chronic physical and psychiatric disorder or drug abuse. There was also no history of head injury, epilepsy, allergy, COVID-19 infection or chronic medication intake. The relevant blood investigations, blood sugar, urine examination and thyroid function tests were normal.

She was put on symptomatic treatment. The symptoms of headache and dizziness improved but

there was no change in parosmia. She requested for CT - Scan (head) or MRI (brain). MRI bran was done and it showed left parietal subcortical ischemic areas and prominent perivascular (VIRCHOR ROBIN) spaces.

Discussion

The present case was initially labelled as somatoform came out to be organic in nature. Although, headache and dizziness responded to symptomatic treatment but atypical symptom of parosmia causes an alert.

There are three important messages from the case report. Firstly, if a patient has been referred by a department, it does not mean that all possible causes related to that department has been ruled out. Secondly, the patients with undiagnosed physical causes should not be labelled as somatoform or conversion disorders. Thirdly, an investigation requested by a patient, if relevant, should never be ignored.

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Case Report

Cognitive retraining as adjunct to manage non-adherence in delivery of dialectical behavior therapy: A case series

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Introduction

Emotional dysregulation (EDR) is defined as patterns of emotional experience or expression that interfere with goal-directed activity.[1] Prevalence of emotion dysregulation in general adult population has been documented to be around 13.9%.[2] Inability to label and regulate emotions is a central theme in borderline personality disorder and antisocial personality disorder.[3,4] Apart from personality disorders, EDR is identified as a risk as well as maintaining factor in mood disorders, substance use disorders and eating disorders; affecting diagnosis, management and prognosis.[5-7] The authors observed overwhelming and fluctuating emotions contributing to non-adherence and delayed therapeutic change in the stated cases. Cognitive retraining (CR) is known to promote treatment adherence and outcomes in schizophrenia, mood disorders, obsessive-compulsive disorder.[8-10] Studies have used it as adjunct therapy to address psychopathology due to underlying emotional dysregulation.[11] Therefore, CR was used to address the overwhelming emotions that interfered in process of therapy. Consequently, delivery of CR paved way for adherence to dialectical behavior therapy (DBT).

Clinical Series

Case 1

Twenty three years old female, BTech, belonging to urban background presented with complaints of being easily bored, low confidence and frequent crying spells for 6-7 months, and having suicidal ideas in the previous week made her seek consultation. Further, she reported frustration at job being unable to quit due to the bond signed with the company for 2 years. Consequently, she along with her then boyfriend and friends ventured into a start-up generating profits, later discord steered it to abolition. This extended to break-up with boyfriend triggering depressive symptoms. To get along grief and boredom, she began to chat with random persons on social media sites coming down to sex chats and unsafe sexual intercourse. The tendency to surrender and gain acceptance was traced to college years with fear of being rejected. She had conflict with father as she perceived him to be a bad husband to her mother who was on treatment for recurrent depressive disorder.

She came for psychotherapy in 2017 but dropped-out and returned in November'2018. The stage 1(Behavioral stability) of DBT module owing to her impulsive sexual encounters, ideas of self-harm, low mood, and resulting dysfunction, was initiated. Validation and cost-benefit analysis was used to target self-destructive coping, and sleep disturbance was intervened through mindfulness practice and sleep hygiene. The adherence fluctuated due to frequent crying spells interfering in progress to stage 2 (Trauma processing). She could not maintain her routine despite having motivation as well as desired psychological sophistication. An eight-week CRwas introduced in the 7th session to address the overwhelming emotions.[12]The tasks of day 1 of the week 1 were demonstrated during the session and same tasks for other 6 days were assigned as homework to be done at a fixed time to gain greater benefit. By 10thsession there was stability and stage 2 of DBT was reintroduced

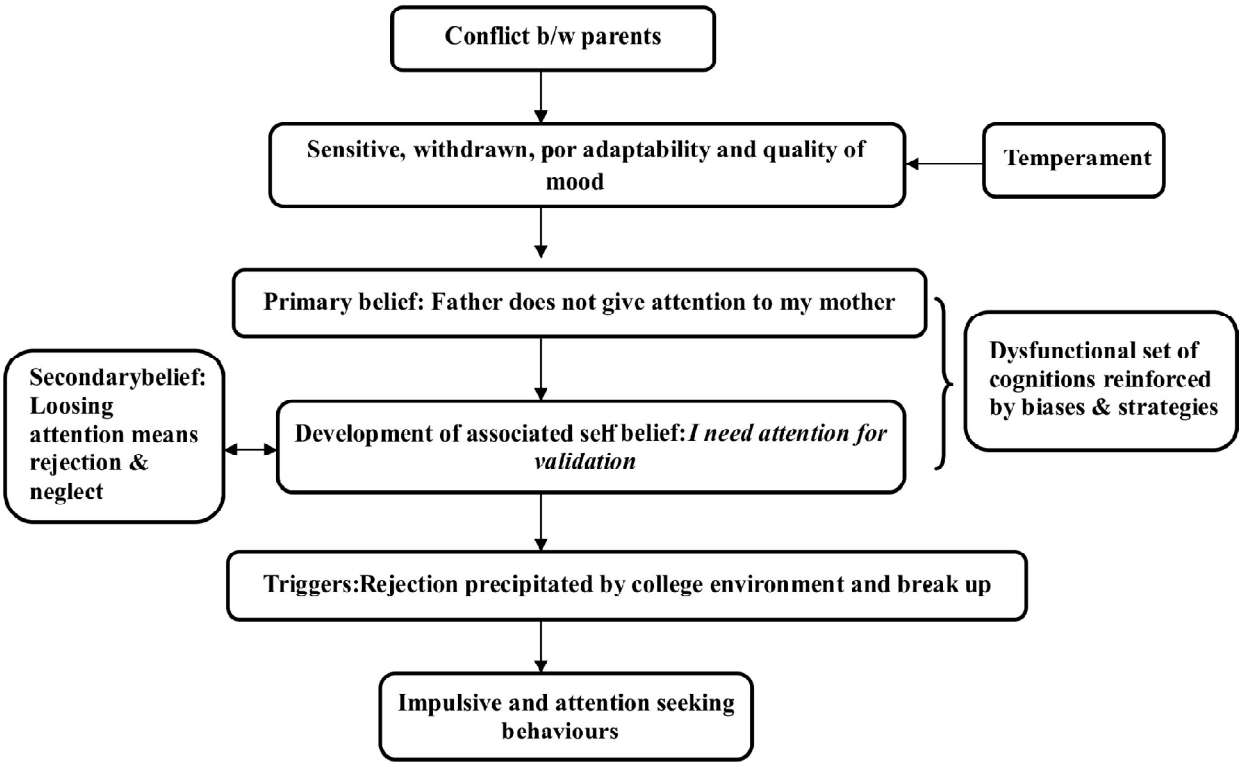

Fig. 1. Case Formulation: Case I

parallel to week 4 of CR. The psychological formulation was laid with emphasis on core interpersonal skills (10th to 14th session). By session 15th she transitioned into stage 3 (Dysfunctional pattern) of DBT in March'2019, contending career dilemmas through problem solving and decision making. She started discussing career options with father and communicating 'no' to friends when needed directing to healthier interpersonal relationships. Later, therapy advanced to maintain the change with Stage 4 (Enhancing well-being) of DBT by 20th session. Termination was introduced in August'2019 by spacing sessions to once in 2 weeks, once a month and once in 3 months. The last session was in January'2020. There was 12 months follow-up through tele-psychiatry and she had been marinating well. She flew abroad for higher education in February'2021.

Case II

Eighteen years old female, undergraduate student, single, living in urban locality with joint family of 14 members. She came to the hospital with anger issues, negative thinking, and irritability persisting for last 2 years. There were difficulties in maintaining basic hygiene in terms of brushing, bathing, washing undergarments, wearing washed clothes after bath, or cleaning her room, cupboard, making bed etc. Whenever she was asked or pushed to do these tasks, she would get aggressive and had even beat mother on a few occasions. She feared the comments and avoided interaction conflicting with need to compete and prove her worth to the family. She had no close friendships and struggled to maintain relationships. Academically, she worked hard and ranked average with good motivation. Her father had been on treatment for recurrent depressive disorder and paternal uncle had intellectual disability. Paternal grandfather had hemiplegia of left side and was head of the family.

She had consulted psychiatrist for depressive symptoms in 2013 and 2016 with noted non-compliance. Current consultation was 3rd and she was referred for psychotherapy. Initial 4 weekly sessions in April'2018 involved elicitation, conceptualization, and psycho-education. DBT was introduced in 5th session in June'2018 to address irritability and aggression impairing personal and occupational functioning. Mindfulness practice and maintaining relationship log was emphasized. She

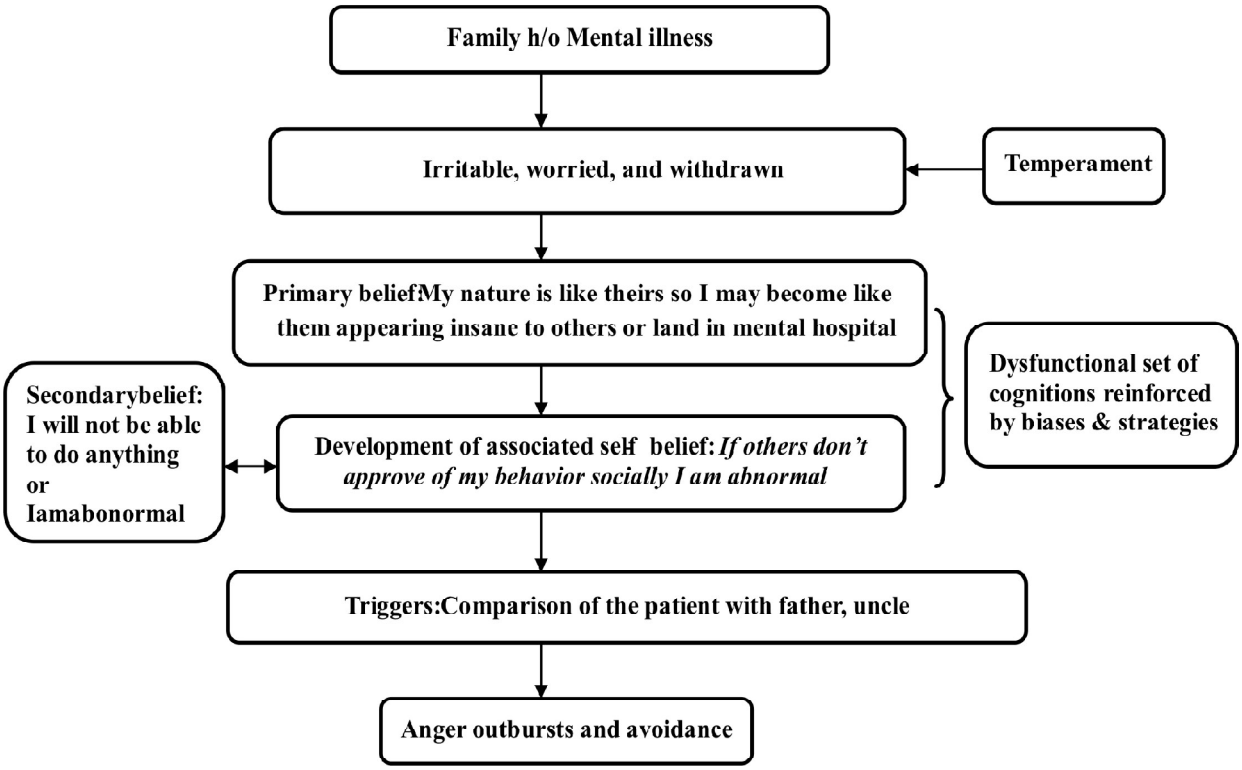

Fig. 2. Case Formulation: Case II

returned after 2 months, and 8 sessions were taken; 1 in August and 7 from November' 2018 to April'2019 with irregular periodicity. She had started doing yoga irregularly drawing benefits in studies and compliance to medicines. The erroneous cognitions were identified namely; personalization, labeling, fortune telling. The nature of thoughts and its implications were discussed using the relationship log along with behavioral experiments. She returned in August'2019, reported behavioral improvement but cognitions still affected her. CR was initiated in August'2019 completed by the end of September'2019; assigning the modules of 3 consecutive weeks followed by 2 weeks and 3 weeks respectively. She stated significant improvement in self-regulation and concentration as well as constancy in studies. In the next 4 sessions, attributions of dysfunctional statements were analyzed; evidence and alternative statements were generated mutually. She appeared calm and receptive having enhanced psychological sophistication. She communicated her career plans to family with matured regulation. Termination was introduced in February'2020 with booster sessions in March'2020, followed by telephonic sessions in May, July and October of the year 2020. The telephonic follow-up of 15 months revealed she had been maintaining well, currently pursuing higher studies along with home tuitions and actively participates in social interactions as well as domestic chores.

Case III

Sixteen years old female presented with abrupt onset of anxiety, hyperventilation, and apprehension with palpitation, weakness and tingling sensations in upper limbs for last 3 weeks fearing the style of examination marking by the new Teachers of 11th standard. Family history revealed her being the only female child born in 2 generations in both paternal and maternal side of the family. She was considered as blessing of goddess Lakshmi and had been pampered by both sides of the families. The home environment was dominated by stringent rules, discipline and strict adherence to do's and don'ts. Her father was on treatment for somatoform disorder with recurrent depressive disorder, and hyperventilation like symptoms in paternal grandmother. She had been topper all through the school years leading to the pressure of maintaining

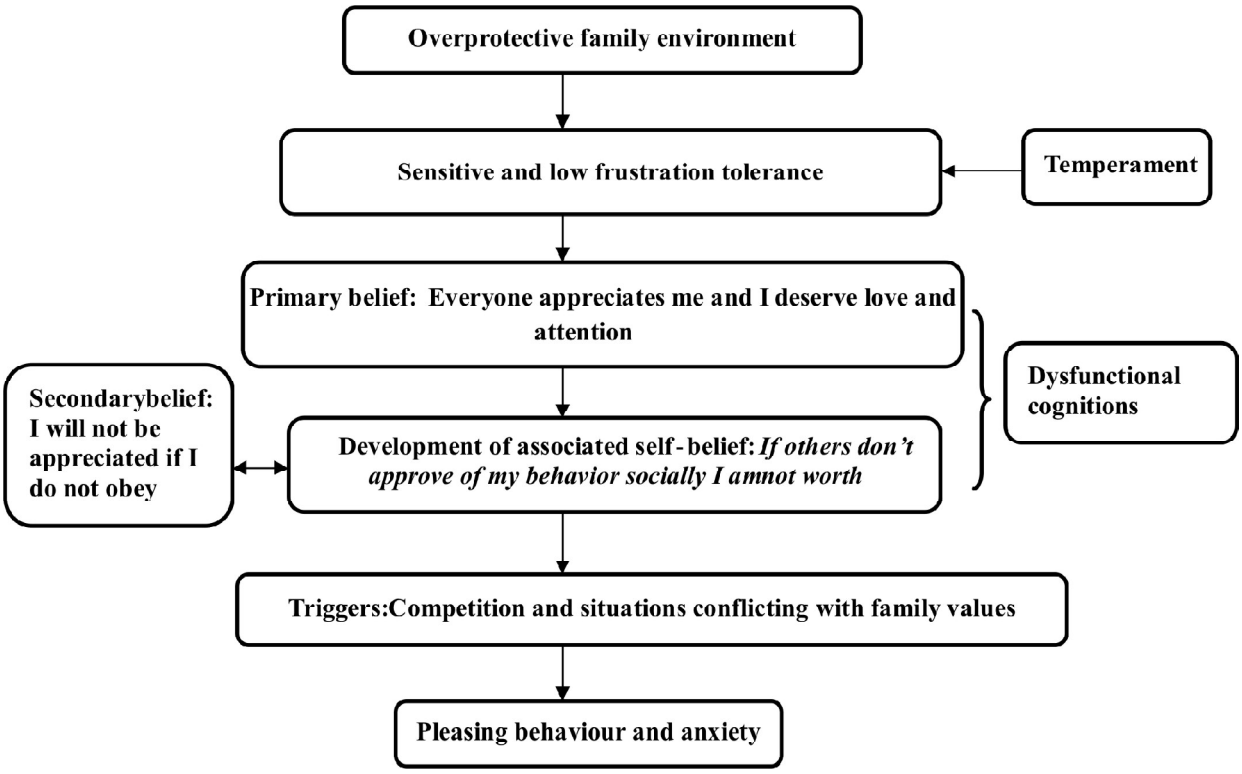

Fig. 3. Case Formulation: Case III

and fear of losing the position. She appeared to be constantly concerned about her image of being ideal in the eyes of the family and teachers. She would get concerned if she scored 1 or 2 marks lesser and ensured teacher(s) doesn't see her sitting with a peer who is less studious or chatting with peers etc. If under any circumstances she perceived any threat to her image then she would experience anxiety. Also, failure to get desired attention of the teacher(s) would make her feel insulted and induce anxiety.

She was inducted for DBT in October'2018 accounting her adjustment disorder with predominant anxiety. She was psycho-educated about the genesis of issues and treatment modalities. Behavioral stability was achieved by December'2018 using distress tolerance and mindfulness skill training. Radical acceptance was emphasized to prevent being overly judgmental of situation. Radical acceptance coping statements were practiced in the sessions and she was encouraged to practice same in other settings. The challenge wasto identify cognitions regarding need to please, comparison, maintaining ideal-image as these cognitions were reinforced in the family environment. Further, working through these cognitions would have induced incongruence causing anxiety. Therefore to avoid incongruence, CR was introduced by May'2019 to sieve anxiety cultivating occupational functioning. The comparisons with others or peers producing negative emotions decreased as a result of CR mediating erroneous cognitions. Her emotion dysregulation interfered occupational functioning though she was skilled to maintain friendships but participation appeared to be obstructed by attempt to maintain ideal image. She rejoiced interpersonal relationships in the family. By April'2019 DBT was continued provoking on maintaining the change. She reported she had not had any anxiety during the exams as she continued to use distress tolerance and mindfulness skills. Also, the statements of comparison surfaced but she maneuvered attributing it to individual differences and uniqueness. Termination was introduced by end of April'2019 and booster sessions continued till August'2019. Follow-up sessions via tele-psychiatry and face-to-face session in July and November of 2021 revealed she had been maintaining well, pursuing College education and mingling with peers without affected by comparison. She did not take many outings with friends due to family restriction but relishes social interactions participat-

ing in joint activities without any significant need to impress authority figure.

Discussion

The case series presented with manifestation of emotion dysregulation in emotionally unstable or impulsive type borderline personality, recurrent depressive disorder and anxiety spectrum with contrasting family environment. The progression of therapy was interfered by overwhelming emotions in the form of crying spells leading to passive participation in therapy in case I. In case II the impact of overwhelming emotions lead to disorganized behavior in day-to-day functioning as well in therapeutic process. And in case III, overwhelming anxiety resulted from beliefs and need for approval/ forming impression. In both the cases, homework assigned in therapy could not be completed. Third case was compliant to homework but her beliefs appeared congruent to family system hence challenging these beliefs created incongruence and challenging was discontinued. Since enhanced cognitive functioning improves theory of mind, so authors adopted CR to mediate cognitive errors than direct challenging.[13] DBT is well established program enhancing emotion regulation, distress tolerance, mindfulness and interpersonal skills requiring new skills to be learnt and practiced.[14] Therefore, compliance is important but non-adherence may appear in psychotherapy due to structural or emotional barriers.[15]

Overwhelming emotions reduce willingness and ability to use new skills which may be overcome by sustained efforts or using adjunct treatments.[16,17]The proper and specialised treatment stabilizes 40-60% individual with BPD showing recovery to the extent that they no longer meet the criteria for BPD.[17] In the reported cases overwhelming emotions were intervened using CR which directed to adherence affecting the process and outcome of DBT. Therefore, CR may be a feasible adjunct treatment for this population, especially for adolescents having significant impairment or lacking involvement of carers in the treatment.[18]

Conclusion

One may be willing and motivated for treatment despite that non-adherence can appear. The young adults are surrounded by life-changing decisions such as education and employment exerting demands and emotional turmoil. DBT encompasses these concerns and CR as an adjunct facilitates emotion regulation. Most significant, adherence on part of the therapist is important to encourage compliance in a patient.

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Forthcoming Events

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- https://conference-service.com/conferences/psychiatry.html
- https://waset.org/psychiatry-conferences
- https://psychiatry.psychiatryconferences.com/
- https://www.rcpsych.ac.uk/events
- https://allconferencealert.net/topics/psychiatry.php
- https://www.mdlinx.com/psychiatry/conference.cfm

Interesting Articles

- Bhui K, Malhi G. Proposed Assisted Dying Bill: Implications for mental healthcare and psychiatrists. Br J Psychiatry 2022; 221(1) : 374-376. doi:10.1192/bjp.2022.41

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Annual Awards

Delhi Psychiatric Society Annual Awards

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1. Dr. Ravi Pande Memorial Award for Young Psychiatrist:

a) The original research done by a young Psychiatrist below 40 years of age
b) It should be unpublished and not elsewhere submitted
c) The paper is to be presented at the time of CME/Annual Conference
d) 70% marks are for written evaluation and 30% for presentation
e) Presenter and at least 50% of co-authors must be full members of the Society
f) Consent is required from all authors

2. Dr. Saadgi Jagawat Memorial Award for Female Postgraduate Student:

a) The original research done by a female postgraduate (MD/DNB/DM)
b) Certificate of doing PG is required from the Head/ Institution
c) It should be unpublished and not elsewhere submitted
d) The paper is to be presented at the time of CME/Annual Conference
e) 70% marks are for written evaluation and 30% for presentation
f) Presenter (PG student) and at least 50% of co-authors must be full members of the Society
g) Consent is required from all authors

3. Dr. Ravi Nehru Memorial Award for Best Published Paper:

a) Published work in the field of Neuropsychiatry or Neuropsychology
b) Principal Author and at least 50% of co-authors should be members of the Society at the time of publication
c) The published work should be in the previous 2 years (i.e., for 2022 Award, July 2019 to June 2021)
d) Consent is required from all authors

4. Dr. J.S. Neki Memorial Best Poster Award:

a) Based on Original research
b) It should be unpublished and not elsewhere submitted
c) The poster is to be presented at the time of CME/Annual Conference
d) Presenter and at least 50% of co-authors must be full members of the Society
e) Consent is required from all authors

5. Dr. H.C. Raheja Memorial Oration Award:

a) The oration award will be declared in advance at every annual conference of the society.
b) Any Life Full Member of the society can propose the name of any other Life Fellow of the society for the oration award. The proposal including four copies of the bio-data of the nominee must be submitted to the Chairperson, Awards Committee by a date determined by the Executive Council of DPS.
c) The proposal must be accompanied by a written consent of the nominee.
d) To be eligible for the award, the nomination shall be assessed on the following criteria:
   i) Contribution to the service and development of psychiatry in India - 30 marks
   ii) Contribution to the Delhi Psychiatric Society - 30 marks

iii) Contribution to teaching, training and research in Psychiatry - 20 marks
iv) Overall seniority in Psychiatry, recognition, and standing amongst fellow Psychiatrists in India - 20 marks

e) The speaker can choose any topic for the oration. He shall intimate the title of the oration to the chairperson awards committee prior to the conference.

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a) Any Life Full Member of the society can propose the name of any other Life Fellow of the society for the award. The proposal including four copies of the bio-data of the nominee must be submitted to the Chairperson, Awards Committee by a date determined by the Executive Council of DPS.
b) The nominee must have contributions to the service and development of psychiatry in India; Contribution to the Delhi Psychiatric Society and overall seniority in Psychiatry, recognition, and standing amongst fellow Psychiatrists
c) Age above 60 years
d) Name will be finalized by the executive council of DPS in consultation with Awards Committee

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- Names (along with email and contact numbers) of Chairperson and Coordinator and last dates will be announced

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Title page must contain type of article, title and running title not exceeding 40 characters on the top of it. In the byline authors name (last name, first name followed by initials of middle name) and highest academic qualifications must be mentioned. Department and institution to which the work should be attributed should be mentioned below authors name.

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Total number of words in the text (excluding abstract and references), total number of tables, figures should be mentioned thereafter.

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For clarification see following reference styles.

Sample citations

According to our previous work,[1,3-8,19]
The Patient's were studied as follows.[3,4]

Sample References

- **Articles**
  1. Roest AM, Zuidersma M, de Jonge P. Myocardial infarction and generalised anxiety disorder : 10-year follow up. Br J Psychiatry 2012; 200 : 324–329.
  2. Bremner JD, Shearer KD, McCaffery PJ. Retinoic acid and affective disorders: The evidence for an association. J Clin Psychiatry 2012; 73 : 37–50.
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